D-10/100

SERVICE MANUAL

D-10:
US Model
Canadian Model
D-100:
AEP Model
UK Model
E Model
AUS Model

SONY
Discman
OPEN
REMAIN
ENTER
PLAY
KEY
MODE
DIGITAL

Discman

Refer to BP-100 Service Manual issued previously for information of rechargeable battery pack supplied with this set.

SPECIFICATIONS

CD section

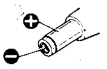
System	Compact disc digital audio system
Disc	Compact disc
Laser diode properties	Material: GaAlAs Wavelength: 780 nm Emission duration: Continuous Laser output: Max. 0.4 mW* *This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the Optical Pick-up Block.
Spindle speed	500 r.p.m to 200 r.p.m. (CLV)
Scan velocity	1.2–1.4 m/sec.
Error correction	Sony Super Strategy Cross Interleave Reed Solomon Code
Number of channels	2
D-A conversion	16-bit linear
Frequency response	20–20,000 Hz ±1 dB*
Dynamic range	More than 90 dB*
Signal-to-noise ratio	More than 85 dB
Wow and flutter	Below measurable limit*
Outputs (at 9 V input level)	Line output (stereo minijack) Output level 1.3 V rms at 50 kilohms Load impeadance over 10 kilohms Headphones (stereo minijack) 30 mW + 30 mW at 32 ohms

*Measured by EIAJ CP-307

General

Power requirements	Supplied: • Rechargeable battery pack BP-100 • DC IN 9 V jack accepts; Sony AC power adaptor Optional: • Lead acid battery (closed type) using Sony BP-200 rechargeable battery pack, 6 V • Six size AA alkaline batteries (IEC designation LR6) using Sony EBP-360 battery case, 9 V • DC IN 9 V accepts; Sony DCC-120 car battery cord for use on 12 V car battery
Power consumption	1.8 W DC
Dimensions	Approx. 125.8×19.8×132.8 mm (5×¾×5¼ in.) (w/h/d) not incl. inclined part (depth), projecting parts and controls Approx. 126.8×22.9×133.3 mm (5×⅞×5¼ in.) (w/h/d) incl. projecting parts and controls
Weight	Approx. 420 g (14.8 oz), net

Note: Use only the supplied AC power adaptor or the recommended car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



CAUTION

- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

COMPACT DISC COMPACT PLAYER

SONY®

AUD

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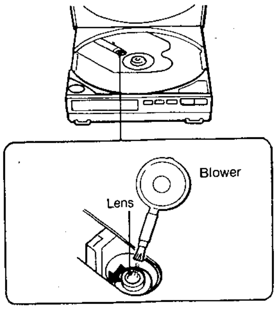
MAINTENANCE

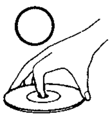
CLEANING THE CASING
Clean the casing with a soft cloth slightly moistened with water or mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine as they may mar the finish of the casing.

CLEANING THE LENS
If you have accidentally touched the lens with a dirty finger or if the dust on the lens prevents the set from operating properly, open the disc compartment lid and clean the lens.

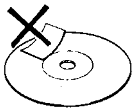
To remove dust
Blow on the lens a few times with a commercially available blower, brush the dust away in the direction of the arrow, then blow on the lens again.



NOTES ON COMPACT DISCS

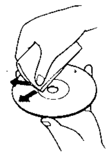


Handle the disc by its edge, and to keep the disc clean do not touch the rainbow colored surface.



Do not stick paper or tape nor write anything on the labeled surface.

Do not expose the disc to direct sunlight or heat sources such as hot air ducts, nor leave it in a car parked in direct sunlight where there can be a considerable rise in the temperature.



Before playing, clean the disc with the optional cleaning cloth.
Wipe the disc from the center out.

Do not use solvents such as benzine, thinner, commercially available cleaners or anti-static spray intended for analog discs.

After playing, store the disc in its case.

TROUBLE SHOOTING GUIDE

Should any problem persist after you have made these checks, consult your nearest Sony service facility.

Disc play does not start.
- The HOLD switch is set on.
- The disc is inserted with the labeled surface down.
- The disc is incorrectly inserted.
- Dusty or defective disc (see page 2)
- Dirty or dustly lens (see page 2)
- The disc compartment lid is not closed.
- Moisture condensation
- The AC power adaptor is not plugged to the wall outlet. (see page 10)
- Weak battery
- The car battery cord is not firmly connected. (see page 11)

No sound from headphones
- The headphones plug is not firmly connected to the PHONES jack. (see page 11)

No sound from speakers
- Incorrect connections (see page 11)
- The amplifier is not turned on.

Skipping of sound
- Dirty or defective disc (see page 2)
- Dirty lens (see page 2)
- Strong vibration (see page 10)

– CAUTION FOR ELECTROSTATIC BREAKDOWN –

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (KSS-160A)

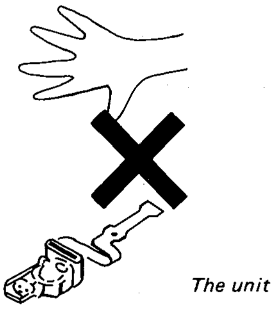
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
The printed matter below is included in the repair parts. During repair, use the procedure in the printed matter.
The flexible board is easily damaged and should be handled with care.
The following method is an example for reference purposes:

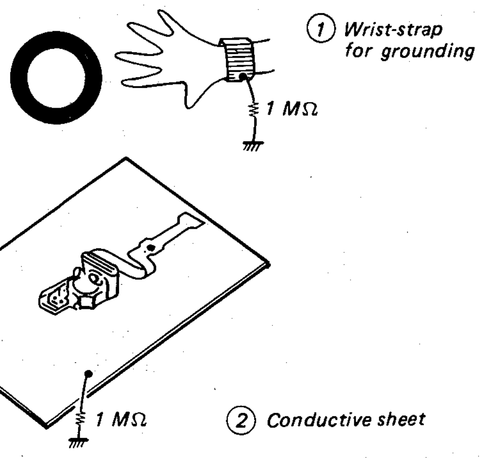
1. Place a conductive sheet on the workbench. (The black sheet used as repair parts wrapping).
2. Place the set on the conductive sheet so that the chassis touches the sheet. (This makes it the same potential as the conductive sheet).
3. Place your hands on the conductive sheet. (This makes them the same potential as the sheet).
4. Remove the optical pick-up block.
5. Perform work on top of the conductive sheet. Be careful that clothing does not touch the optical pick-up block.

Printed Matter Included in the Repair Parts

When opening or repairing the unit, the procedure for grounding as follows is required to prevent damage caused by static electricity.

1. Grounding for the human body
   Be sure to put on a wrist-strap for grounding (with impedance lower than 10^8 Ω) whose other end is grounded. The strap works to drain away the static electricity build-up on the human body.
2. Grounding for the work table
   Be sure to lay on the table a conductive sheet (with impedance lower than 10^9 Ω) such as sheet of copper, which is grounded.
3. As static electricity build-up on clothes is not draindedaway, be careful not to let your clothes touch the unit.





Chip Component Indications

The official specifications which are presently indicated are EIAJ standard.

(1) MELF (leadless): EIAJ RC-8001

(2) Square chip components (laminated ceramic): EIAJ RC-3699. Square chip resistors are presently under study by EIAJ.

The following explanation covers square chip components (MELF omitted).

1. 2-letter Method (EIAJ RC-3699)

- Letter combination: letter + 1 number
- Letter meaning: letter = effective numeric
  number = multiplier

* The units used are pF for capacitors and Ω (ohm) for resistor.

(This is mainly used for Symbol and Numeric and Multiplier capacitors.)

Letter	A	B	C	D	E	F	G	H	J	K	L
Numeric	1	1.1	1.2	1.3	1.5	1.6	1.8	2	2.2	2.4	2.7
Letter	M	N	P	Q	R	S	T	U	V	W	X
Numeric	3	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5
Letter	Y	Z	a	b	d	e	f	m	n	t	y
Numeric	8.2	9.1	2.5	3.5	4	4.5	5	6	7	8	9

Number	0	1	2	3	4	5	6	7	8	9
Maltiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^8	10^{-1}

- Ex.: A1 1×10^1 = 10 pF (or, 10Ω)
  E3 1.5×10^3 = 1500 pF (or, 1.5 kΩ)

2. 3-number Method

(Mainly used for chip resistors)

- Number meaning:

  1st and 2nd number = effective numeric
  3rd number = multiplier of 10

  Unit: pF for capacitor, for resistor

- Ex.: 103 10×10^3 = 10000Ω = 10 kΩ (or, 0.01 μF)
  224 22×10^4 = 220000Ω = 220 kΩ (or, 0.22 μF)

3. 4-letter Method (used for capacitor)

- Letter combination: 3 numbers + 1 letter
- Letter meaning: number = effective numeric + multiplier of 10
  (same as 3-number method)
  letter = capacitor response
- Symbol and Response

〈For temperature compensation〉

Symbol	C	P	R	S	T	U	(NO)
Response	CΔ	PΔ	RΔ	SΔ	TΔ	UΔ	SL

Δ is temperature coefficient tolerance, and is G, H, J, K.

〈For high dielectric constant〉

Symbol	K	Z
Response	B	F

- Ex.:

Code		Value	Response
47 3Z	➡	47×10^3 = 47000pF = 0.047μF	F response
15 1R	➡	15×10^1 = 150pF	RΔ response
22 2	➡	22×10^2 = 2200pF	SL response

Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

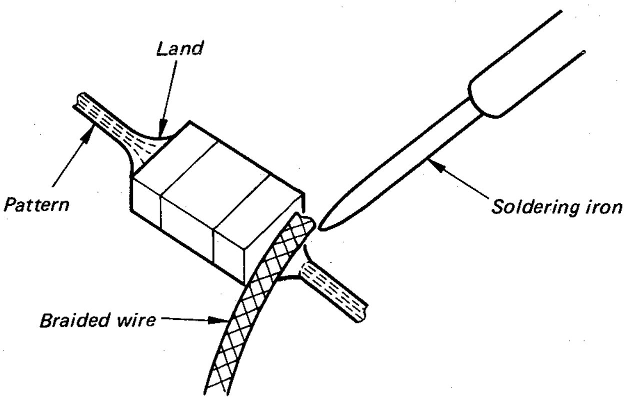
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ Removing chip components

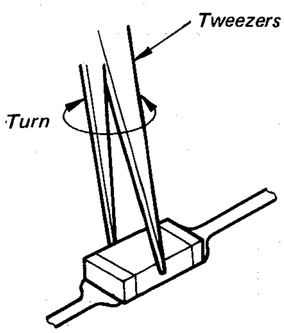
(1) Removing solder at electrode

Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.
Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

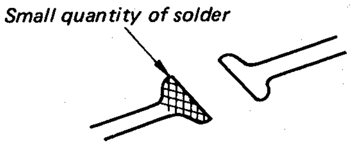
After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

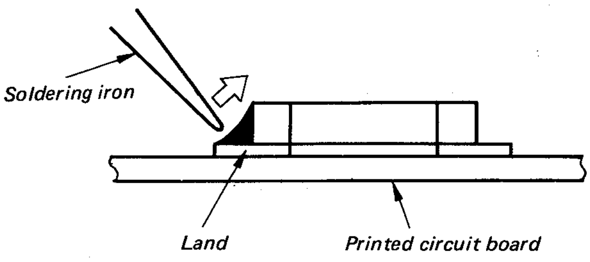
(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



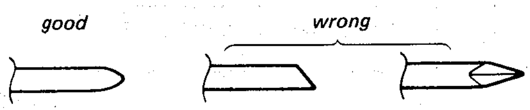
(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at 270° ± 10°C during repairing.
   You can maintain the temperature of the soldering iron around 270°C by using the thermal controller as illustrated on the right.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

Tip of soldering iron



SERVICE MODE (service program)

The program on this set selects either service program routine or normal routine after power supply is connected and a $\overline{\text{RESET}}$ signal enters. When it enters service program routine, the microcomputer brings the necessary job from each subroutine corresponding to the key input, and executes that job. Operation check can be performed efficiently using this mode. The operation method of service mode is explained below.

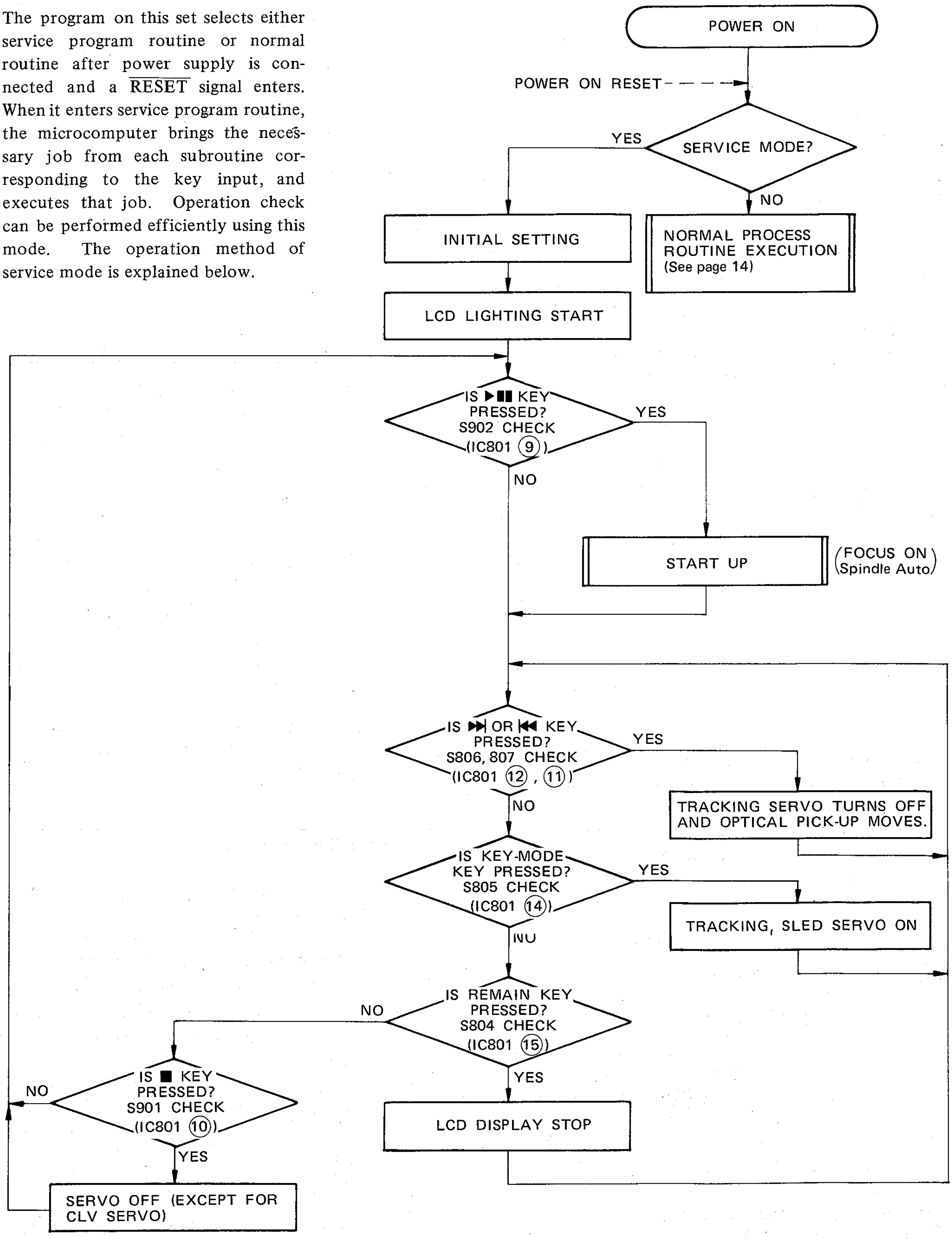
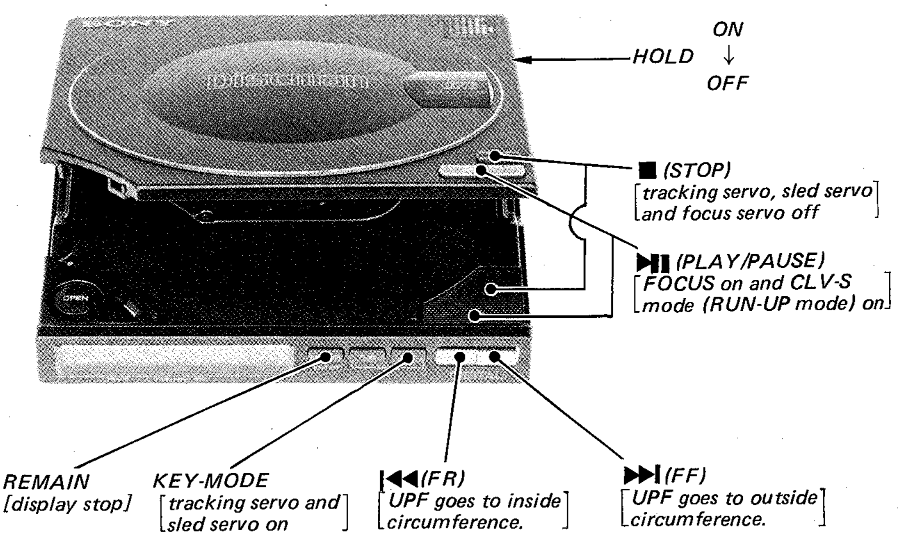

POWER ON
POWER ON RESET
SERVICE MODE?
YES
NO
INITIAL SETTING
NORMAL PROCESS ROUTINE EXECUTION (See page 14)
LCD LIGHTING START
IS ▶■■ KEY PRESSED? S902 CHECK (IC801 ⑨)
YES
NO
START UP
(FOCUS ON Spindle Auto)
IS ▶▶| OR |◀◀ KEY PRESSED? S806, 807 CHECK (IC801 ⑫, ⑪)
YES
NO
TRACKING SERVO TURNS OFF AND OPTICAL PICK-UP MOVES.
IS KEY-MODE KEY PRESSED? S805 CHECK (IC801 ⑭)
YES
NO
TRACKING, SLED SERVO ON
IS REMAIN KEY PRESSED? S804 CHECK (IC801 ⑮)
NO
YES
LCD DISPLAY STOP
IS ■ KEY PRESSED? S901 CHECK (IC801 ⑩)
NO
YES
SERVO OFF (EXCEPT FOR CLV SERVO)

Fig. 1 Service Program Flow Chart



HOLD ON ↓ OFF

Be sure to set HOLD switch OFF.
If not key inputs can not be operated.

■ (STOP)
[tracking servo, sled servo and focus servo off]

▶II (PLAY/PAUSE)
[FOCUS on and CLV-S mode (RUN-UP mode) on]

REMAIN
[display stop]

KEY-MODE
[tracking servo and sled servo on]

|◀◀(FR)
[UPF goes to inside circumference.]

▶▶|(FF)
[UPF goes to outside circumference.]

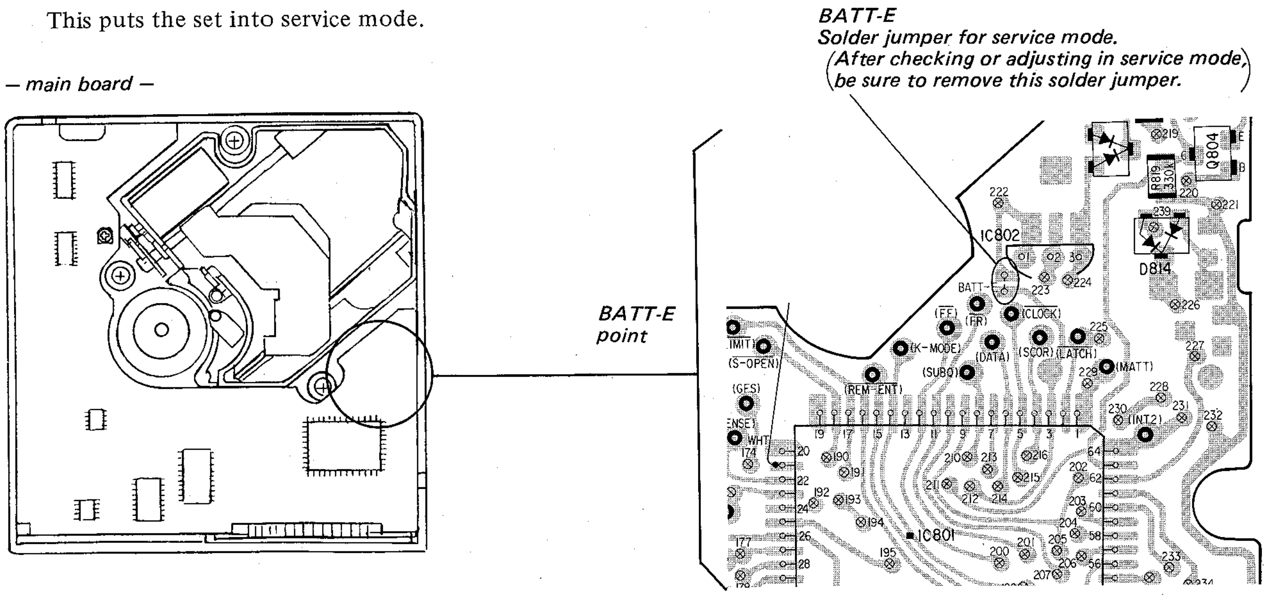
[ ] : Main operation in service mode for details, refer to step 2.

Fig. 2 Key Positions

Step 1 (Service Mode setting method)

1. Turn the HOLD switch OFF with the external power supply not plugged in (no power applied to set) and press the ▶II key.
   (This is to discharge C804 connected to IC801 pin ㉒ (RST).)
2. Solder jumper BATT-E point.
   (IC801 pin ③ (BATT-E) pin is grounded.)
3. Plug in external power supply.
   This puts the set into service mode.

– main board –


BATT-E
point
IC802
IC801
D814
Q804
BATT-E
(FF)
(FR)
(CLOCK)
(K-MODE)
(DATA)
(SCOR)
(LATCH)
(SUBQ)
(REM-ENT)
(MATT)
(INT2)
(S-OPEN)
(GFS)

BATT-E
Solder jumper for service mode.
(After checking or adjusting in service mode, be sure to remove this solder jumper.)

Fig. 3 BATT-E Point Position

Step 2 (Service Mode operation)

1. When service mode is set, the display will change 6 times, and those 6 changes will be repeated over and over.
   With this the LCD display should be present in service mode. Even if LCD does not display, other operations will be performed.
2. When ▶▶| or |◀◀ key is pressed, the UPF moves to the inside or outside circumference. Tracking servo and sled servo go off when this is done, so press KEY-MODE to turn on the tracking servo if necessary.
3. When REMAIN is pressed, the display stops. When REMAIN is released, the display continues to change. This allows check of each segment.
4. When ▶❚❚ key is pressed, CLV-S (pull-in mode) starts while performing focus search. When there is no disc installed, focus search is repeated several times while disc motor is rotating.
5. When KEY-MODE is pressed, tracking servo, sled servo and CLV-A (servo during PLAY) go ON.
6. When 4 and 5 are performed, the disc begins to play. At this time, the top panel should be closed and S801 are to be ON.
   When S801 is OFF, CLV-S does not work properly and the disc continues to rotate while repeating focus search. A sound is not produced as muting is ON.
7. Servo except for CLV servo go off when ■ key is pressed. Disc motor does not stop as CLV servo go ON. Disc motor stops by unplugging the external power supply.

Step 3 (Service Mode release)

1. First be sure to unplug the external power supply, then remove the BATT-E point solder jumper.
   (During service mode, C804 is discharged by unplugging the external power supply. Therefore, microcomputer IC801 is reset by next plugging in the external power supply.)
2. The set will now operated normally.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe, from more than 30 cm away from the objective lens.

Laser Diode Check Procedure

The laser diode on this set will not emit unless the top panel is closed and S801 (leaf SW type) is turned on. The laser diode will always emit even if focus search is not performed in service mode.
The laser diode is checked using the current value which flows to the laser diode inside the UPF.

Procedure 1 (service mode or normal operation)
Check the laser diode emission with the eye.

1. Open upper panel.
2. S801 on as Fig. 5.
   (In service mode, this operation is not necessary.)
3. Press the ▶II key.
   (In service mode, this operation is not necessary.)
4. Observe the objective lens and confirm that the laser diode is emitting light. At this time, the laser diode goes on about 6 seconds due to focus serarch. If it does not, APC circuit or UPF is defective.

Procedrue 2 (service mode or normal operation)
Check by the curent with flows in the laser diode.

1. Close the top panel.
2. Remove the main board and read the current value on the label affixed to the UPF.
   (Label on UPF)

   KSS-160A
   JAPAN
   S123
   499 — current value
   This means 49.9 mA.

   The current value varies with the set.
3. Connect a VOM as shown in Fig. 6.
4. Press the ▶II key.
5. Calculate the current by the VOM reading.
   VOM reading (V) ÷ 16.5 = current (A)
   ex. VOM reading = 0.78 V
   0.78 ÷ 16.5 =0.0473 (A) = 47.3 (mA)
6. Confirm that the ammeter reading is within the range given below.
   value on label $^{+5}_{-11}$ mA (25°C)
   variation relative to temperature:
   0.4 mA/°C
   (Current increases when temperature rises and decreases when it drops.)
   If the value is more than the range given, APC circuit has been defective or the laser diode has deteriorated. If it is less, APC circuit or UPF is defective.

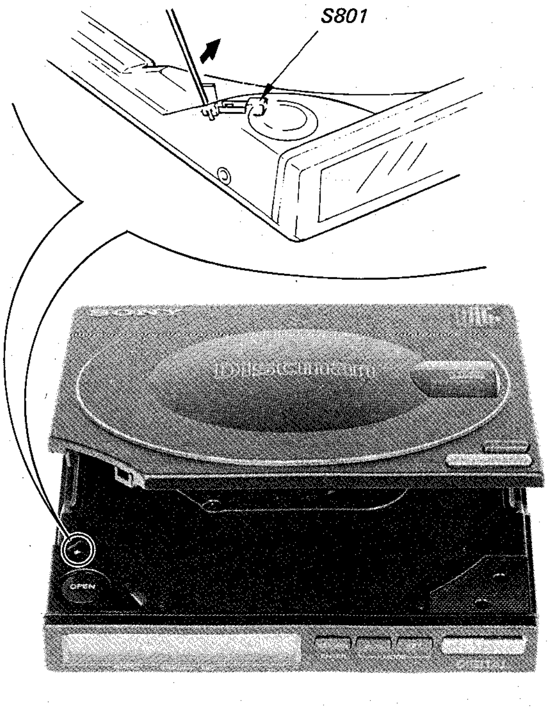


Fig. 5 Turning S801 on

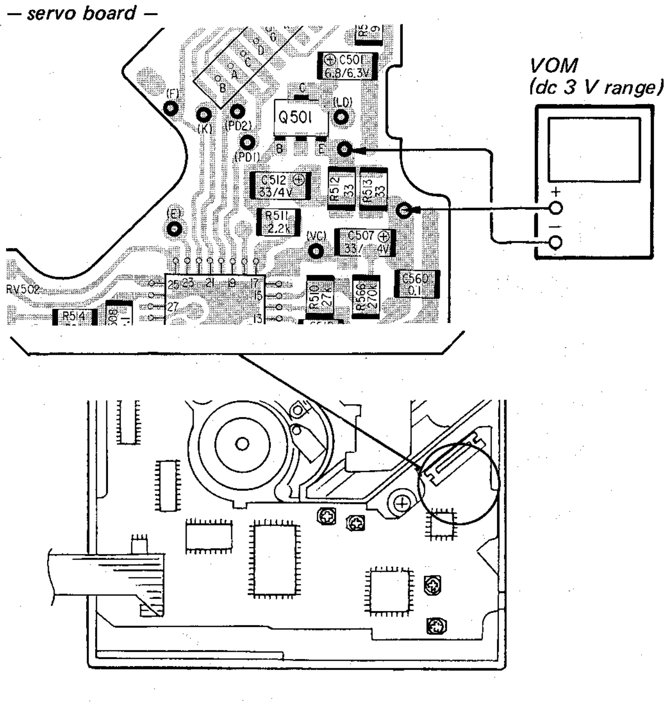
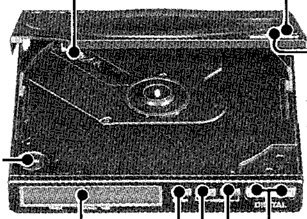


Fig. 6 VOM Connection

LOCATION AND FUNCTION OF CONTROLS

Refer to the pages indicated in ● for details.



Lens
The laser beam is emitted from this point to pick-up the signal on the disc.

OPEN button ⑪

■ (stop) button ⑪

▶II (play/pause) button ⑪

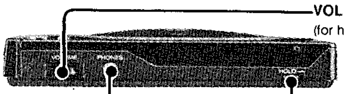
AMS/Search (|◀◀, ▶▶|) buttons ⑪

KEY MODE button ⑫

PLAY MODE button ⑫

REMAIN/ENTER button ⑪ ⑫

Right side

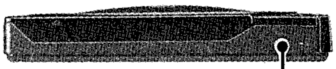


VOLUME control ⑩
(for headphone listening)

PHONES (headphones) jack
(stereo minijack)

HOLD switch ⑩
Prevents buttons from being accidentally pressed. Also decreases sound skipping. Use it when carrying the set outside.

Left side



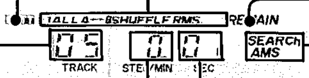
REMOTE jack
Connects the optional Sony remote control unit RM-DMIK.

Rear panel

DC IN 9V (external power input) jack ⑩

LINE OUT jack
(stereo minijack)

Display window


1ALL A↔BSHUFFLE RMS
REMAIN
05
00
SEARCH
AMS
TRACK
STEP/MIN
SEC

BATT (battery) indicator
Appears during operation.
Flickers when the battery becomes weak.

TRACK indicator
Shows the track number of the selection being played.

STEP/MIN (minute) indicator
Shows the order in which selections are memorized during the RMS memorization process.

Play mode indicators ⑫

REMAIN indicator ⑪

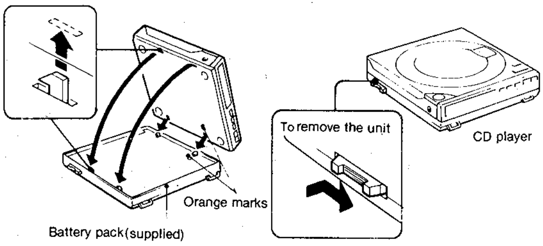
AMS/SEARCH indicator ⑪

SEC (second) indicator ⑪

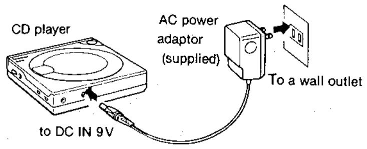
FOR OUTDOOR USE

HOW TO USE THE RECHARGEABLE BATTERY PACK

TO ATTACH


To remove the unit
CD player
Orange marks
Battery pack(supplied)

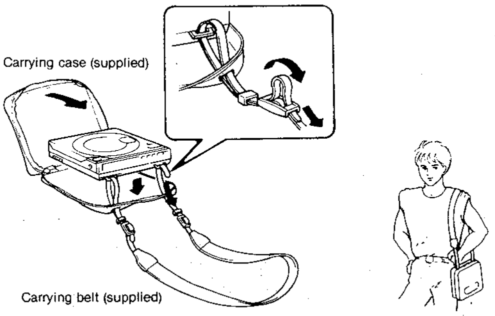
TO RECHARGE


CD player
AC power adaptor (supplied)
To a wall outlet
to DC IN 9V

WHEN USING A BATTERY CASE

6 hours of continuous play is possible by using the EBP-360 battery case (optional) with 6 size AA alkaline batteries.

HOW TO USE THE CARRYING CASE AND BELT


Carrying case (supplied)
Carrying belt (supplied)

Charging time
- Before using the battery pack for the first time, charge it for approx. eight hours.

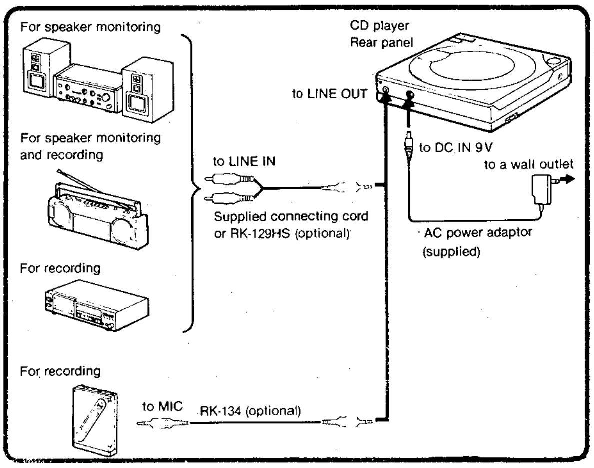
Charging time	Continuous disc playing time
8 hours (completely charged)	4.5 hours
5 hours (90% charged)	4 hours

Note on charging
For charging, use only the supplied AC power adaptor. If not, the player will be damaged.

Replacement of the rechargeable battery pack
If the operating time of the CD player becomes shortened after it been fully charged, change the unit.
The unit can be recharged for approx. 200 times.

Note on carrying
When you operate the set while carrying, bumps and excessive vibration may cause sound skipping. In such case, Set the HOLD switch on to decrease sound skipping.

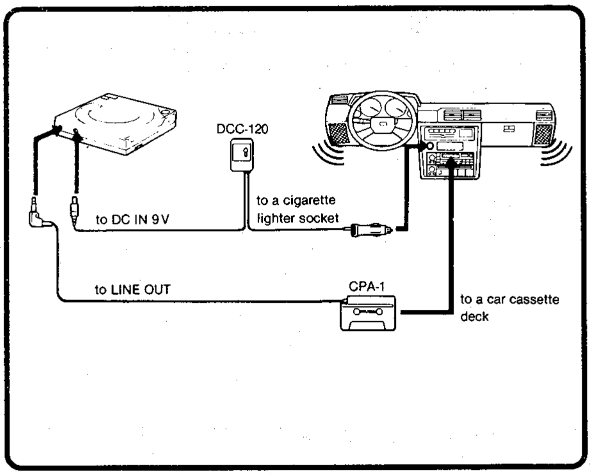
FOR SYSTEM CONNECTION


For speaker monitoring
For speaker monitoring and recording
For recording
For recording
CD player Rear panel
to LINE OUT
to DC IN 9V
to a wall outlet
to LINE IN
Supplied connecting cord or RK-129HS (optional)
AC power adaptor (supplied)
to MIC
RK-134 (optional)

Notes on connection

- Turn off the amplifier before making connections.
- Plug in the white plug to the L(left channel) jack, and the red plug to the R(right channel) jack.
- Be sure to insert the cable connectors firmly into the jacks.
  Loose connections may cause hum and noise.
- Be sure not to connect the CD player to the PHONO input jacks of the amplifier.
- If the CD player causes interference to radio and television reception, turn off the player or move the player away from the receiver.
- Since the CD system offers a wide dynamic range, the peaks of the high level inputs are recorded with high fidelity, and the noise level is very low. Do not turn up the volume while listening to a portion with no audio signals or very low level inputs. If you do, the speakers may be damaged when a peak level portion is played.

FOR CAR USE

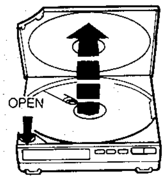

DCC-120
to a cigarette lighter socket
to DC IN 9V
to LINE OUT
CPA-1
to a car cassette deck

Notes

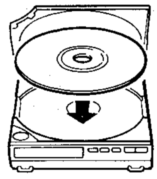
- When using the CPA-1 only:
  Use the supplied battery pack as a power source.
  When using the DCC-120 only:
  Use headphones for monitoring. Sound will not come out from the car stereo speakers.
- Place the CD player on a surface with less vibration.
- For the unit to operate at its best, it should not be subject to temperatures below 5°C (41°F) or above 35°C (95°F).

DISC PLAYING

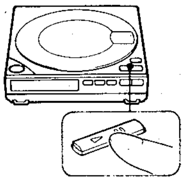
1 Open the lid.



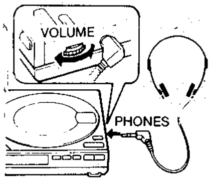
2 Put the disc inside.



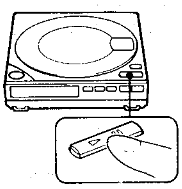
3 Press ►II.
Playing will begin.



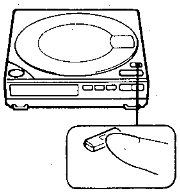
4 Adjust the volume.


VOLUME
PHONES

TO PAUSE
Press ►II.
(To play, press again.)



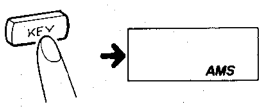
TO STOP
Press ■.



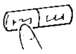
TO SEARCH FOR A PARTICULAR SELECTION

—AMS function

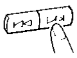
During play or pause, proceed as follows.



To search for the beginning of the selection being played *



To search for the next selection * *

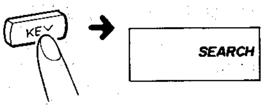


* Press continuously to search for a previous selection.
* * Press continuously to search for a selection ahead.
After the last selection the TRACK indicator will not change.

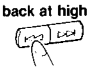
- In the pause mode press the |◄◄ or ►►| button while observing the TRACK indicator on the display. The player pauses at the beginning of the desired selection.
- During RMS play, AMS operates in the memorized order.

TO SEARCH FOR A PARTICULAR POINT IN A SELECTION—SEARCH function

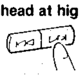
During play or pause, proceed as follows.



To go back at high speed



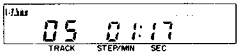
To go ahead at high speed



┌ ┌ appears if you continuously press the |◄◄ button at the beginning of the disc.
┘ ┘ appears if you continuously press the ►►| button at the end of the disc. To return to a TRACK indication, press the |◄◄ button.

Using the Time Counter

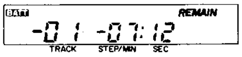
Elapsed Playing Time


05 01:17
TRACK
STEP/MIN
SEC

Shows 1 minute 17 seconds have elapsed from the beginning of the fifth selection.

Remaining Playing Time

Press the REMAIN/ENTER button.

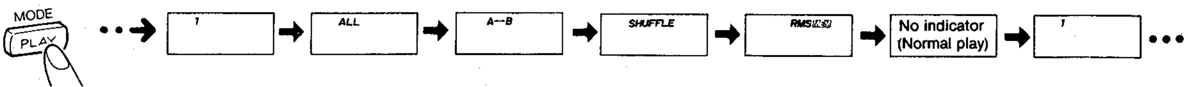

BATT
REMAIN
-01 -07:12
TRACK
STEP/MIN
SEC

Shows 1 selection and 7 minutes and 12 seconds are remaining before the end of the disc.

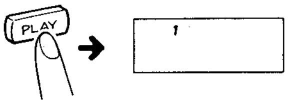
VARIOUS PLAYING MODES

ABOUT THE PLAY MODE BUTTON

Each time the button is pressed during play or pause, the display indicator changes in sequence as follows.
To release each play mode and stop the disc, press ■.

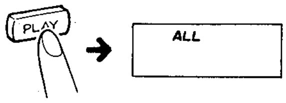


TO REPEAT ONE SELECTION—*1 repeat play*



After the selection you are listening to ends, the same selection will be repeated.

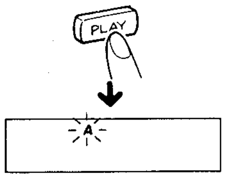
TO REPEAT THE WHOLE DISC—*All repeat play*



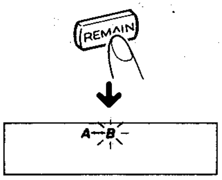
When the disc reaches the end of the last selection, the player will automatically go back to the beginning of the first selection, and play will restart.

TO REPEAT PLAY BETWEEN TWO DESIGNATED POINTS—A↔B repeat play

1

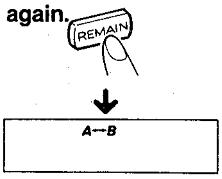


2 **Press REMAIN/ENTER at the starting point (A) of the repeat play.**



Point A has been memorized.

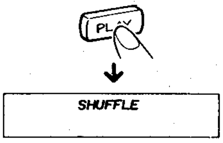
3 **Locate the ending point (B) of the repeat play and press REMAIN/ENTER again.**



Point B has been memorized.
Playing will start from point A.

ABOUT THE PLAY MODE BUTTON

TO PLAY THE SELECTIONS IN A RANDOM ORDER —SHUFFLE repeat play



In a shuffle repeat play, all the selections in the disc will be played once in a random order.

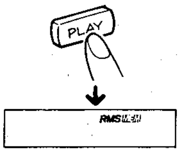
Shuffle play starts from the following selection.

After all the selections on the disc have been played in random order, the selections are reshuffled and played continuously in a different order each time.

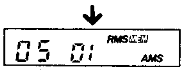
You cannot return to the previous selection. When the unit reaches the beginning of the selection being played, play starts automatically.

TO PLAY THE SELECTIONS IN YOUR DESIRED ORDER —RMS (program) play

1

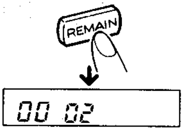


2 **Choose your desired selection by pressing |◀◀ or ▶▶|.**



5th selection Program 1

3 **Press REMAIN/ ENTER.**

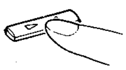


Program 2

4 **Repeat steps 2 and 3.**

(Up to 21 programs can be memorized.)

5 **Press ▶II.**



Playing will begin from the first memorized selection.

Notes on program play

- When more than 21 selections are memorized, the previous programmed selection will be cleared and a new one will be memorized in its place.
- Since blank space between selections is minimal when the RMS function of the cassette-corder which works by searching for blank spaces, may not be activated.

SECTION 1
OUTLINE

1-1. CIRCUIT DESCRIPTION

[SYSTEM CONTROL 4-BIT MICROCOMPUTER]

Table 1 explains the ports and Fig. 7 is the program flor chart. When power is applied to the set, a $\overline{RST}$ signal is applied to the microcomputer and the program starts. First judgement is made whether to go to service mode. (Service mode is explained on page 7 – 9.) When it goes to a regular mode, clock oscillation is stopped, stand-by occurs, and waiting for $\overline{PB/PAUSE}$ input results. Clock oscillation is stopped for saving power consumption.

When the PB/PAUSE button is pressed, the program continues on to the main routine, and continues running on the main loop until the STOP button is pressed or until some kind of trouble causes emergency stop to be generated.

The SUB-Q signal is applied to the serial data input port (PX3/SI) and SCOR to event counter input port (PY3/$\overline{EC}$), and SUB-Q is read into the RAM by the interrupt processing rountine in the main loop.

The following are the three types of interrupt processing:

(1) External interrupt: by SCOR (75 Hz)

(2) Timer/Counter overflow interrupt: by built-in counter (54.6 Hz)

(3) Serial Buffer F/E (FULL/EMPTY) interrupt: executed when 8 bits of SUB-Q accumulate

Priority order is by number, in order from the lowest, and interrupt begins from high priority interrupt after the currently executed command is completed. On this set, first the loop turns at 54.6 Hz (18 msec) by interrupt (2) until servo is applied. Then when SUB-Q can be read in, interrupt (1) causes the loop to turn at 75 Hz (13.3 msec). The SUB-Q 8 bit processing (sent from register to RAM) is performed at approximately 600 μsec cycles by interrupt (3).

The above is an outline of the program. The main program features are listed below.

(1) Focus search is done 3 times.

(2) For normal STOP UPF is not stopped above the TOC area as before, but at music data area near the innermost circumference. For emergency stop due to OPEN or BATT EMP, it stops right away, where it is. During PLAY, the UPF searches for TOC and reads it, then begins playback.

(3) Search operation to inner circumterence (◀◀) is done by performing 1 track jump three times in a row and to outer circumference (▶▶) is done by performing 1 track jump two time in a row.

(4) Service program is built-in. (Refer to next chapter.)

(5) FZC (Focus Zero Cross) is only detected when the lens goes up.

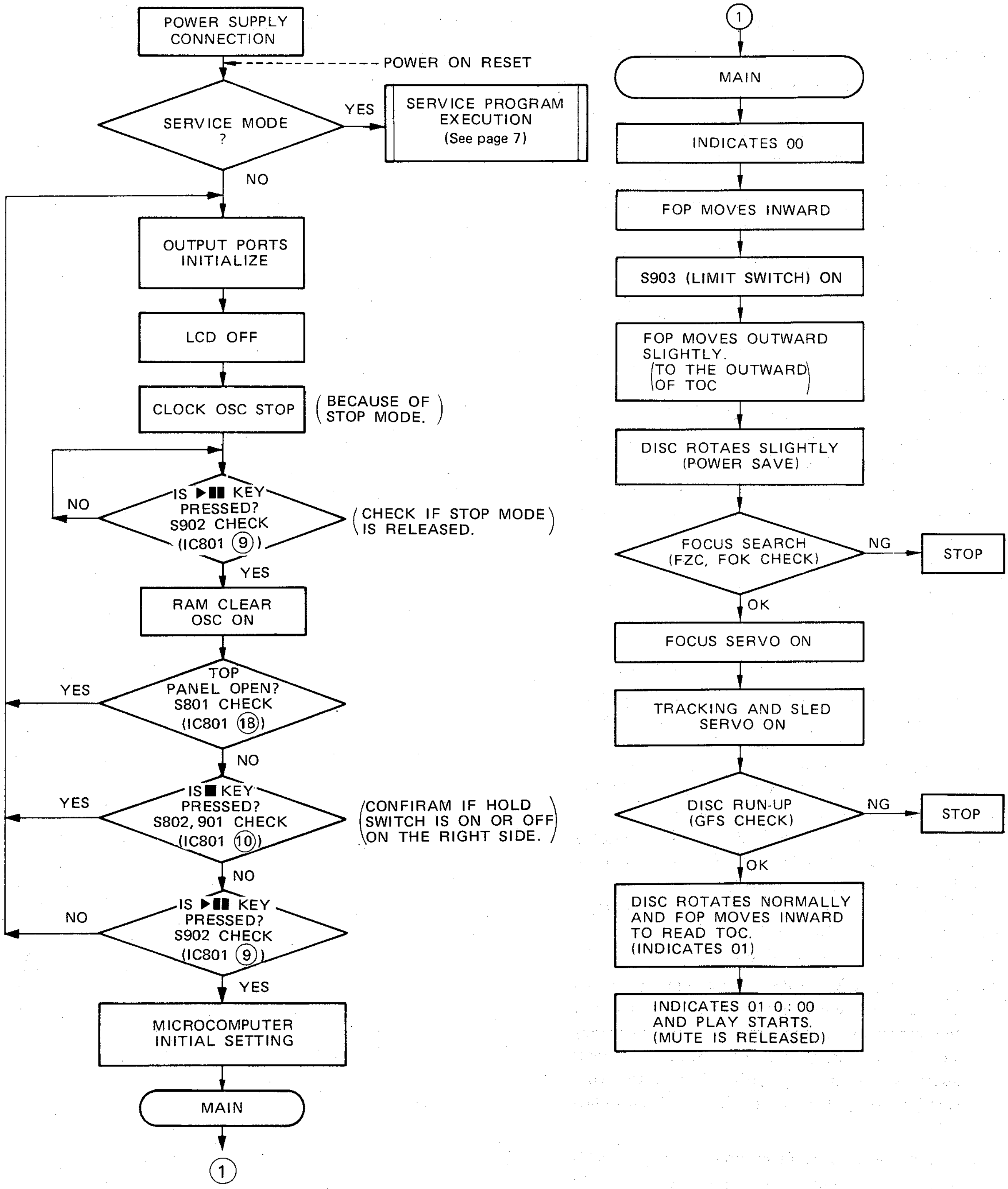
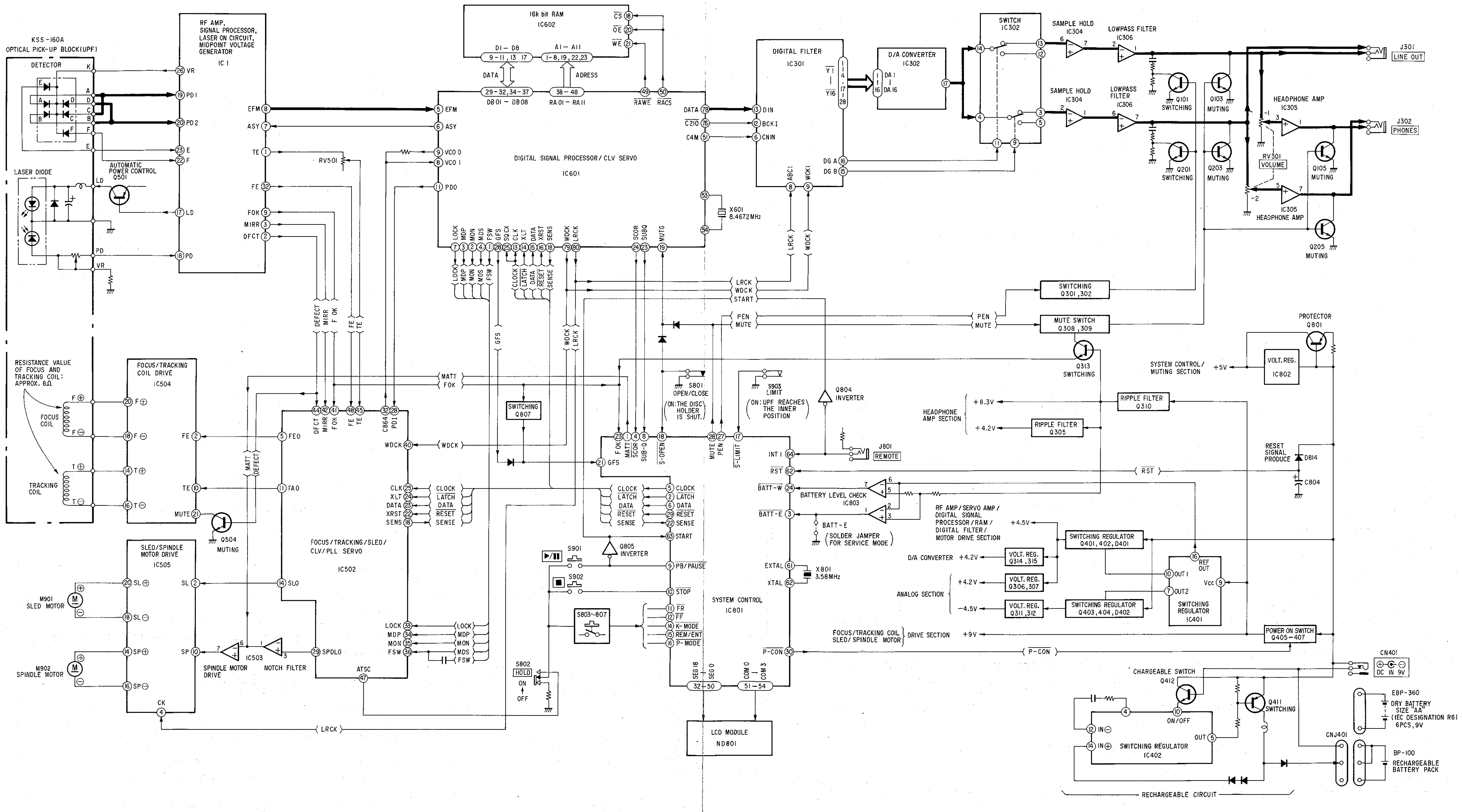

POWER SUPPLY CONNECTION
POWER ON RESET
SERVICE MODE ?
YES
SERVICE PROGRAM EXECUTION (See page 7)
NO
OUTPUT PORTS INITIALIZE
LCD OFF
CLOCK OSC STOP
(BECAUSE OF STOP MODE.)
NO
IS ▶▮▮ KEY PRESSED? S902 CHECK (IC801 ⑨)
(CHECK IF STOP MODE IS RELEASED.)
YES
RAM CLEAR OSC ON
YES
TOP PANEL OPEN? S801 CHECK (IC801 ⑱)
NO
YES
IS ■ KEY PRESSED? S802, 901 CHECK (IC801 ⑩)
(CONFIRAM IF HOLD SWITCH IS ON OR OFF ON THE RIGHT SIDE.)
NO
NO
IS ▶▮▮ KEY PRESSED? S902 CHECK (IC801 ⑨)
YES
MICROCOMPUTER INITIAL SETTING
MAIN
①
①
MAIN
INDICATES 00
FOP MOVES INWARD
S903 (LIMIT SWITCH) ON
FOP MOVES OUTWARD SLIGHTLY. (TO THE OUTWARD OF TOC)
DISC ROTAES SLIGHTLY (POWER SAVE)
FOCUS SEARCH (FZC, FOK CHECK)
NG
STOP
OK
FOCUS SERVO ON
TRACKING AND SLED SERVO ON
DISC RUN-UP (GFS CHECK)
NG
STOP
OK
DISC ROTATES NORMALLY AND FOP MOVES INWARD TO READ TOC. (INDICATES 01)
INDICATES 01 0 : 00 AND PLAY STARTS. (MUTE IS RELEASED)

Fig. 7 Program Flow Chart

Table 1 Pin Functions

Pin No.	Port Name	Signal Name	I/O	Function
1	PY0	MATT	OUTPUT	This output pin maintains inert motor rotation. This pin outputs "H" during the interval from motor begins turning to focus on.
2	PY1	$\overline{\text{LATCH}}$	OUTPUT	When fowarding the serial data to CXD1125 (IC601) and CXA1082AQ (IC502), LATCH signal is input.
3	PY2/INT2	$\overline{\text{BATT-E}}$	INPUT	Normal operation: Battery down signal input pin. When this pin goes "L", it detects running out of the battery. Service mode: This input pin switches the operation mode on the set. Goes from normal mode to service mode when $\overline{\text{RST}}$ input is supplied at "L".
4	PY3/$\overline{\text{EC}}$	$\overline{\text{SCOR}}$	INPUT	SCOR (sync signal with SUB-Q) is input from CXD1125 (IC601) and detects the tip of SUB-Q signal by detecting fall (⌝⌞⌟) of input.
5	PX0/SC	CLOCK	OUTPUT	When fowarding the serial data to CXD1125 (IC601) and CXA1082AQ (IC502), CLOCK signal is input.
6	PX1/SOB	DATA	OUTPUT	Serial data output pin to CXD1125 (IC601) and CXA1082AQ (IC502).
7	PX2/SOA	CD SW	INPUT	CD/RADIO detection pin. "H": CD "L": RADIO
8	PX3/SI	SUB-Q	INPUT	Serial I/O data input pin. SUB-Q signal (information about the music address and emphasis, etc.) is input from CXD1125 (IC601).
9	PD0	$\overline{\text{PB/PAUSE}}$	INPUT	▶❚❚ switch (S902) input pin.
10	PD1	STOP	INPUT	■ switch (S901) input pin. This pin detects fall of input and goes to the set stop mode.
11	PD2	$\overline{\text{FR}}$	INPUT	⏮ switch (S807) input pin.
12	PD3	$\overline{\text{FF}}$	INPUT	⏭ switch (S806) input pin.
13	PC0	$\overline{\text{RADIO}}$	INPUT	Not used.
14	PC1	$\overline{\text{K-MODE}}$	INPUT	AMS/SEARCH switch (S805) input pin.
15	PC2	$\overline{\text{REM/ENT}}$	INPUT	REM/ENT switch (S804) input pin.
16	PC3	$\overline{\text{P-MODE}}$	INPUT	PLAY MODE switch (S803) input pin.
17	PB0	S-LIMIT	INPUT	Limit switch (S903) input pin. When this pin inputs "L", detects UPF reaching the inner most circumference.
18	PB1	S-OPEN	INPUT	OPEN/CLOSE switch (S801) input pin. When this pin inputs "L", detects that the upper panel is open.
19	PB2	IXR	———	Not used.
20	PB3	IXF	———	Not used.
21	PA0	GFS	INPUT	Input pin of Guarded Frame Sync of CXD1125 (IC601) "L" is input when CXD1125 reads the data of disc correctly.
22	PA1	SENSE	INPUT	Input pin of SENSE output of CXD1125 (IC601) and, CXA1082AQ (IC502). When fowarding serial data to CXA1082AQ, the signal which monitors the mode of the specified servo circuit is input.
23	PA2	FOK	INPUT	Focus servo permission input pin. This pin detects the focus at "L".
24	PA3	$\overline{\text{BATT-W}}$	INPUT	Battery voltage reduction input pin. When power supply voltage is less than 5.3 V, "L" is input.
25	VSS	VSS	———	Ground pin.
26	VDD	VDD	———	Power supply pin.
27	PE3/SEG23	PEN	OUTPUT	Emphasis switching output pin of analog circuit. This pin outputs due to an emphasis signal in SUB-Q signal, and switches the analog circuit.
28	PE2/SEG22	MUTE	OUTPUT	Muting signal output pin. CXD1125 (IC601), LINE output and HEADPHONE output are muted mode at "H".
29	PE1/SEG21	$\overline{\text{RESET}}$	OUTPUT	CXD1125 (IC601) and CXA1082AQ (IC502) reset signal output pin. Each IC is reset by outputting "L".
30	PE0/SEG20	$\overline{\text{P-CON}}$	OUTPUT	This output pin controls power ON/OFF. "L": Power ON "H": Power OFF
31	PF3/SEG19	RADIO	———	Not used.
32 | 50	PF2/SEG18 | SEG0	SEG18 | SEG0	OUTPUT	Segment output pin.
51 | 54	COM3 | COM1	COM3 | COM1	OUTPUT	Common output pin (4 partition display).
55 | 57	VLC1 VLC2 VLC3	VLC1 VLC2 VLC3	OUTPUT	Power supply pin for LCD bias.
58	VDD	VDD	———	Power supply pin.
59	$\overline{\text{VL}}$	$\overline{\text{VL}}$	OUTPUT	This control pin cuts off the current flowing to LCD bias resistor in stand-by mode.
60	XTAL	XTAL	OUTPUT	Output pin for clock generation circuit.
61	EXTAL	EXTAL	INPUT	Input pin for clock generation circuit.
62	RST	$\overline{\text{RST}}$	INPUT	External reset signal input pin. This set is reset at "L".
63	WP	START	INPUT	This pin cancels the stand-by mode on the set. The stand-by mode is canceled by rising (⌐⌝⌞) of input.
64	INT1	INT1	INPUT	Remote control reciever unit connection pin. Data is input from remote control reciever unit.

1-2. BLOCK DIAGRAM

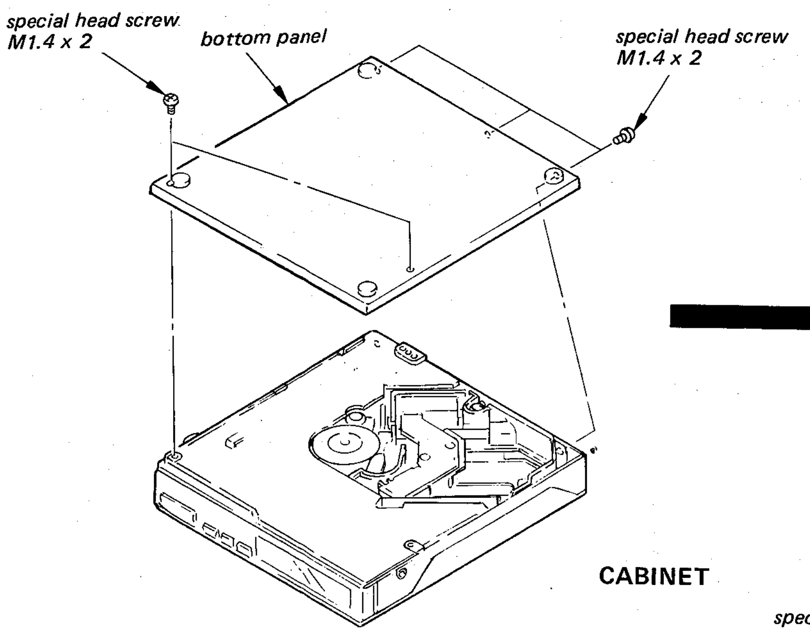

KSS-160A
OPTICAL PICK-UP BLOCK(UPF)
DETECTOR
LASER DIODE
AUTOMATIC POWER CONTROL Q501
RF AMP, SIGNAL PROCESSOR, LASER ON CIRCUIT, MIDPOINT VOLTAGE GENERATOR
IC1
VR
PD1
PD2
E
F
LD
PD
EFM
ASY
TE
FE
FOK
MIRR
DFCT
RV501
16k bit RAM
IC602
$\overline{CS}$
$\overline{OE}$
$\overline{WE}$
D1 – D8
9-11, 13 17
A1 – A11
1-8, 19, 22, 23
DATA
ADRESS
29-32, 34-37
DB01 – DB08
38 – 48
RA01 – RA11
$\overline{RAWE}$
$\overline{RACS}$
DIGITAL SIGNAL PROCESSOR/CLV SERVO
IC601
VCO 0
VCO 1
PDO
DATA
$\overline{C210}$
C4M
X601
8.4672MHz
LOCK
MDP
MON
MDS
FSW
GFS
SQCX
CLK
XLT
DATA
XRST
SENS
WDCK
LRCK
SCOR
SUBQ
MUTG
CLOCK
LATCH
RESET
SENSE
DEFECT
MIRR
F OK
FE
TE
DIGITAL FILTER
IC301
DIN
BCK1
CNIN
$\overline{Y1}$ – $\overline{Y16}$
DG A
DG B
ABC1
WCK1
D/A CONVERTER
IC302
DA1 – DA16
SWITCH
IC302
SAMPLE HOLD
IC304
LOWPASS FILTER
IC306
Q101 SWITCHING
Q103 MUTING
Q201 SWITCHING
Q203 MUTING
HEADPHONE AMP
IC305
RV301
VOLUME
Q105 MUTING
Q205 MUTING
J301
LINE OUT
J302
PHONES
LRCK
WDCK
START
PEN
MUTE
SWITCHING
Q301, 302
MUTE SWITCH
Q308, 309
Q313
SWITCHING
PROTECTOR
Q801
VOLT. REG.
IC802
SYSTEM CONTROL/ MUTING SECTION
+5V
RESISTANCE VALUE OF FOCUS AND TRACKING COIL: APPROX. 8Ω
FOCUS COIL
TRACKING COIL
F ⊕
F ⊖
T ⊕
T ⊖
FOCUS/TRACKING COIL DRIVE
IC504
MUTE
Q504
MUTING
MATT
FOK
FOCUS/TRACKING/SLED/ CLV/PLL SERVO
IC502
FEO
TAO
SLO
SPDLO
ATSC
DFCT
C864
PD1
WDCK
CLK
XLT
DATA
XRST
SENS
LOCK
MDP
MON
FSW
SLED/SPINDLE MOTOR DRIVE
IC505
M901
SLED MOTOR
M902
SPINDLE MOTOR
SL ⊕
SL ⊖
SP ⊕
SP ⊖
CK
SPINDLE MOTOR DRIVE
IC503
NOTCH FILTER
SWITCHING
Q807
S801
OPEN/CLOSE
(ON: THE DISC HOLDER IS SHUT.)
S903
LIMIT
(ON: UPF REACHES THE INNER POSITION)
Q804
INVERTER
J801
REMOTE
GFS
S-OPEN
MUTE
PEN
S-LIMIT
SUB-Q
SCOR
Q805
INVERTER
S901
▶/❚❚
S902
■
S803~807
S802
HOLD
ON
OFF
PB/PAUSE
$\overline{STOP}$
$\overline{FR}$
$\overline{FF}$
K-MODE
REM/ENT
P-MODE
SYSTEM CONTROL
IC801
INT1
$\overline{RST}$
$\overline{BATT-W}$
$\overline{BATT-E}$
BATTERY LEVEL CHECK
IC803
BATT-E
(SOLDER JAMPER FOR SERVICE MODE)
EXTAL
XTAL
X801
3.58MHz
$\overline{P-CON}$
SEG18 – SEG0
32 – 50
COM0 – COM3
51 – 54
LCD MODULE
ND801
HEADPHONE AMP SECTION
+8.3V
+4.2V
RIPPLE FILTER
Q310
RIPPLE FILTER
Q305
RESET SIGNAL PRODUCE
D814
C804
RF AMP/SERVO AMP/ DIGITAL SIGNAL PROCESSOR/RAM/ DIGITAL FILTER/ MOTOR DRIVE SECTION
+4.5V
SWITCHING REGULATOR
Q401, 402, D401
D/A CONVERTER
+4.2V
VOLT. REG.
Q314, 315
ANALOG SECTION
+4.2V
VOLT. REG.
Q306, 307
–4.5V
VOLT. REG.
Q311, 312
SWITCHING REGULATOR
Q403, 404, D402
REF OUT
OUT1
OUT2
Vcc
SWITCHING REGULATOR
IC401
FOCUS/TRACKING COIL SLED/SPINDLE MOTOR DRIVE SECTION
+9V
POWER ON SWITCH
Q405 – 407
CN401
DC IN 9V
CHARGEABLE SWITCH
Q412
Q411
SWITCHING
ON/OFF
IN ⊖
IN ⊕
OUT
SWITCHING REGULATOR
IC402
RECHARGEABLE CIRCUIT
CNJ401
EBP-360
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
BP-100
RECHARGEABLE BATTERY PACK

SECTION 2
DISASSEMBLY

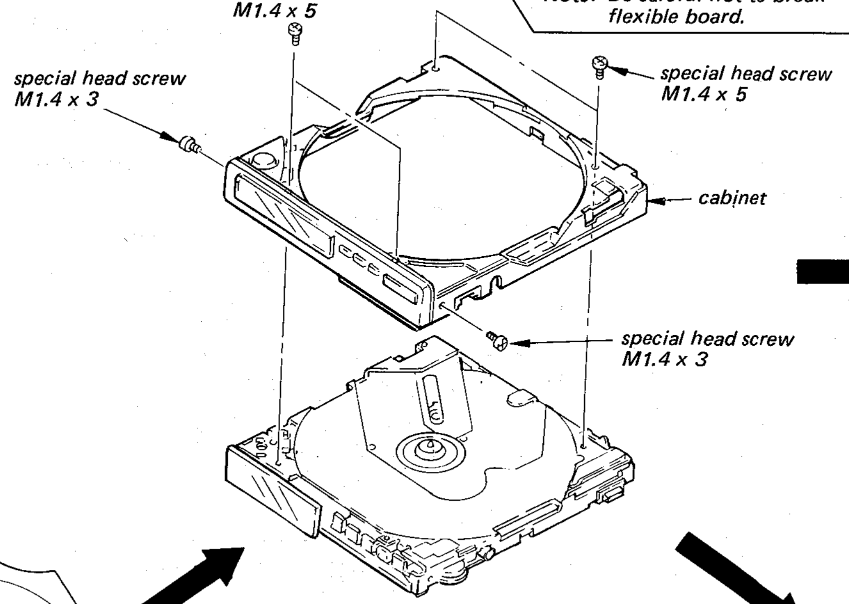
Note: Follow the disassembly procedure in the numerical order given.

2-1. DISASSEMBLY

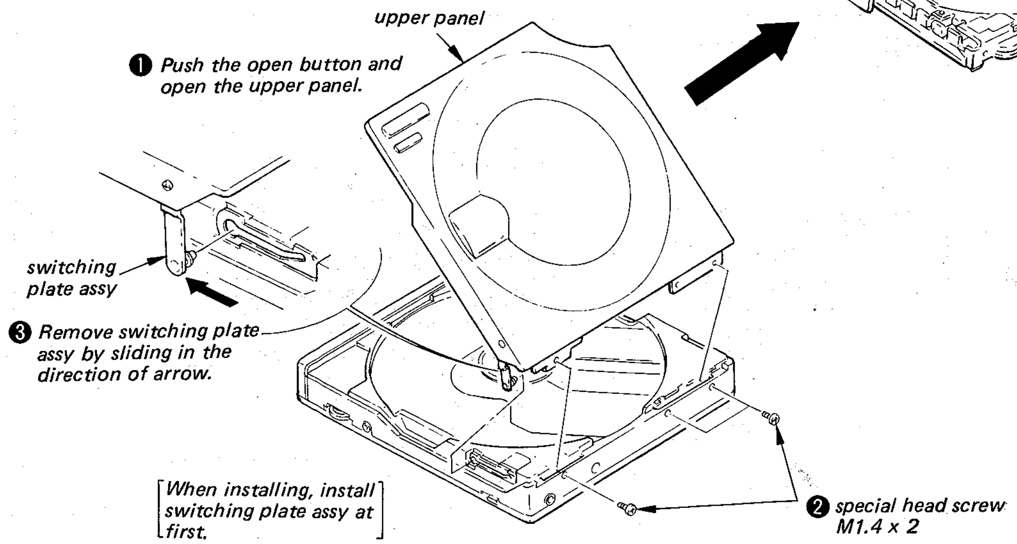
BOTTOM PANEL


special head screw M1.4 x 2
bottom panel
special head screw M1.4 x 2

CABINET


special head screw M1.4 x 5
special head screw M1.4 x 3
special head screw M1.4 x 5
cabinet
special head screw M1.4 x 3

UPPER PANEL

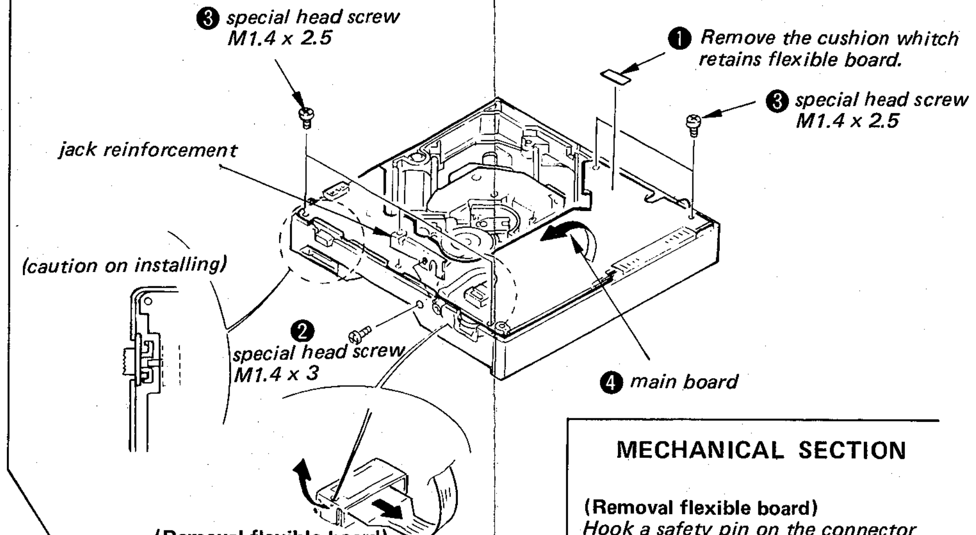

upper panel
switching plate assy
❷ special head screw M1.4 x 2

❶ Push the open button and open the upper panel.

❸ Remove switching plate assy by sliding in the direction of arrow.

[When installing, install switching plate assy at first.]

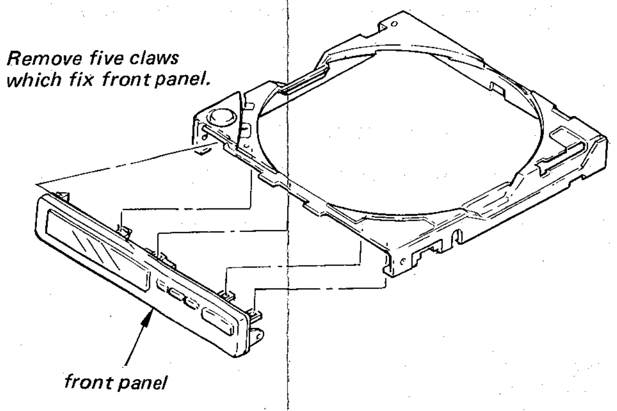
MAIN BOARD


❸ special head screw M1.4 x 2.5
jack reinforcement
(caution on installing)
❷ special head screw M1.4 x 3
❹ main board
❸ special head screw M1.4 x 2.5

❶ Remove the cushion whitch retains flexible board.

(Removal flexible board)
Hook a safety pin on the connector and pull out the flexible board in the direction of arrow by raising up the connector with the safety pin.
Note: Be careful not to break flexible board.

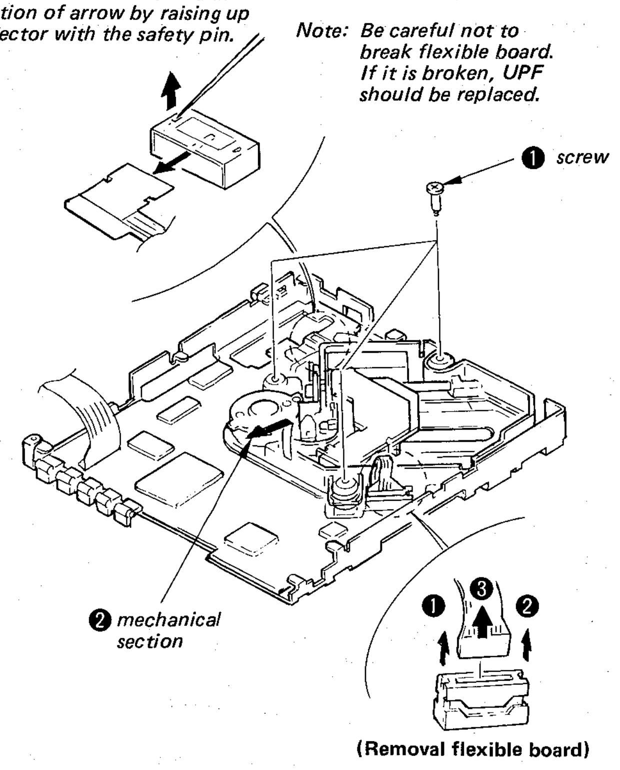
FRONT PANEL


front panel

Remove five claws which fix front panel.

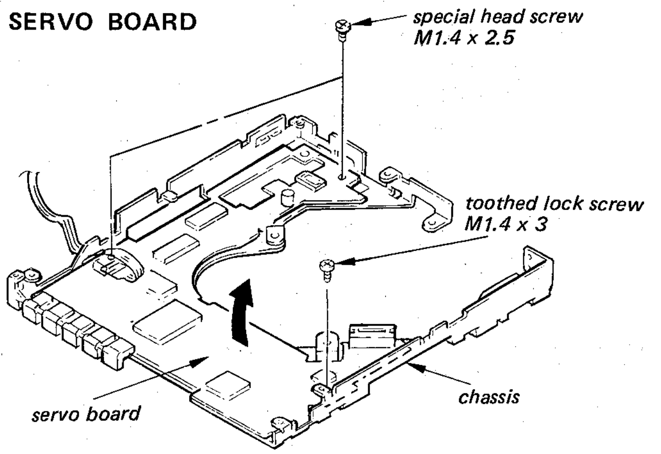
MECHANICAL SECTION

(Removal flexible board)
Hook a safety pin on the connector and pull out the flexible board in the direction of arrow by raising up the connector with the safety pin.

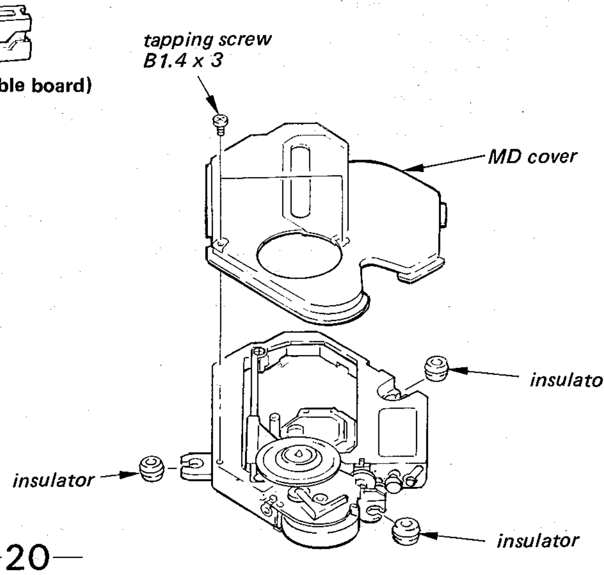

❶ screw
❷ mechanical section
❶ ❸ ❷
(Removal flexible board)

Note: Be careful not to break flexible board. If it is broken, UPF should be replaced.

SERVO BOARD


special head screw M1.4 x 2.5
toothed lock screw M1.4 x 3
servo board
chassis

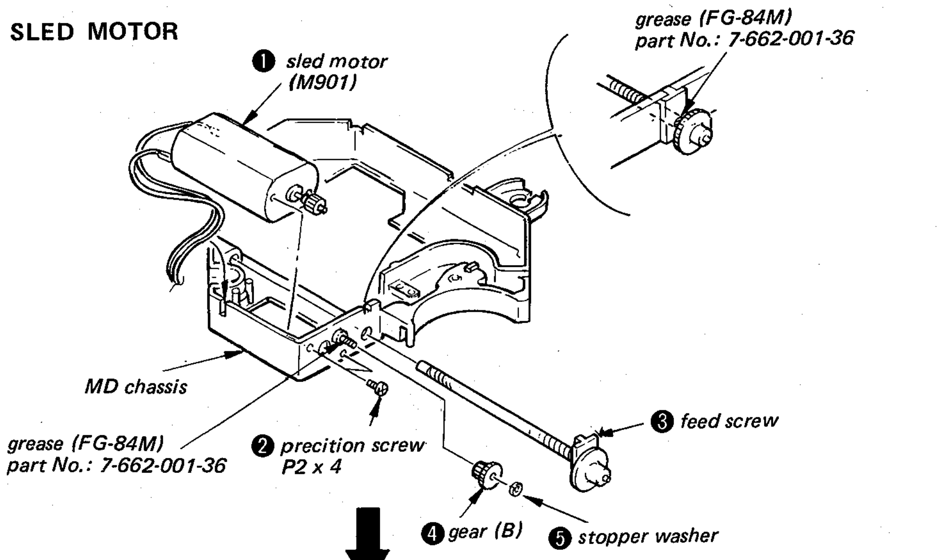
MD COVER AND INSULATOR


tapping screw B1.4 x 3
MD cover
insulator
insulator
insulator

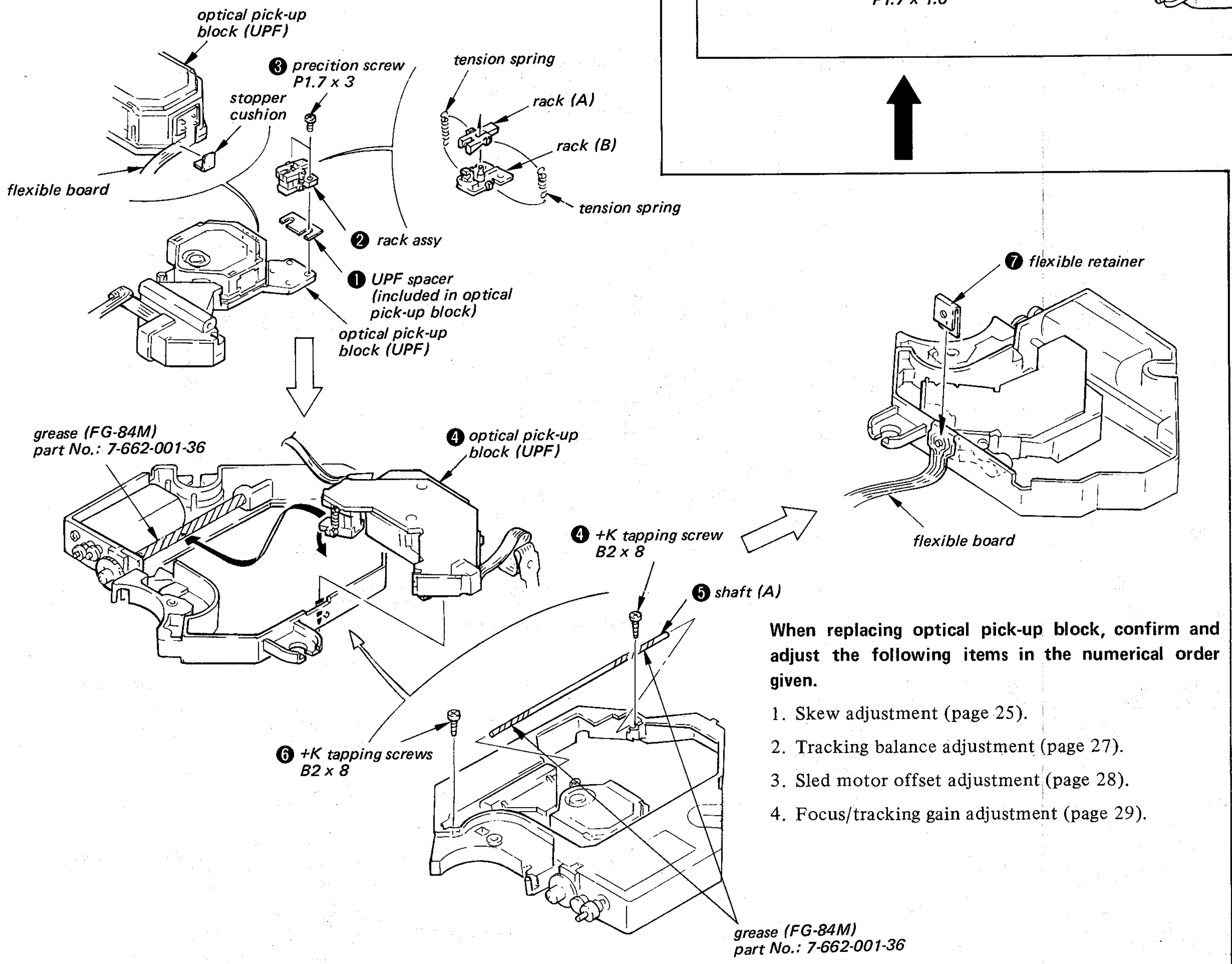
Refer to NOTE ON HADLING THE OPTICAL PICK-UP BLOCK (KSS-160A) on page 3.

2-2. MECHANICAL SECTION REASSEMBLY

SLED MOTOR


grease (FG-84M)
part No.: 7-662-001-36
❶ sled motor (M901)
MD chassis
grease (FG-84M)
part No.: 7-662-001-36
❷ precition screw P2 x 4
❸ feed screw
❹ gear (B)
❺ stopper washer

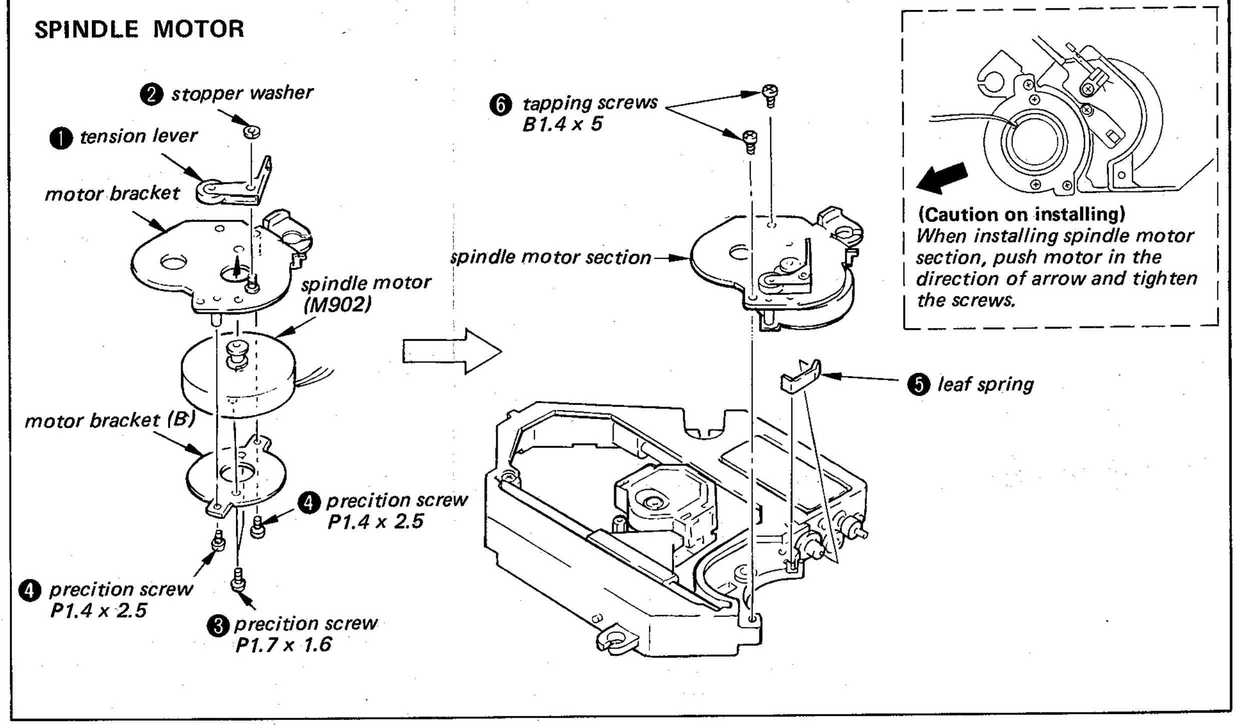
OPTICAL PICK-UP BLOCK (UPF)


optical pick-up block (UPF)
❸ precition screw P1.7 x 3
tension spring
rack (A)
rack (B)
tension spring
stopper cushion
flexible board
❷ rack assy
❶ UPF spacer (included in optical pick-up block)
optical pick-up block (UPF)
❼ flexible retainer
flexible board
grease (FG-84M)
part No.: 7-662-001-36
❹ optical pick-up block (UPF)
❹ +K tapping screw B2 x 8
❺ shaft (A)
❻ +K tapping screws B2 x 8
grease (FG-84M)
part No.: 7-662-001-36

When replacing optical pick-up block, confirm and adjust the following items in the numerical order given.

1. Skew adjustment (page 25).
2. Tracking balance adjustment (page 27).
3. Sled motor offset adjustment (page 28).
4. Focus/tracking gain adjustment (page 29).

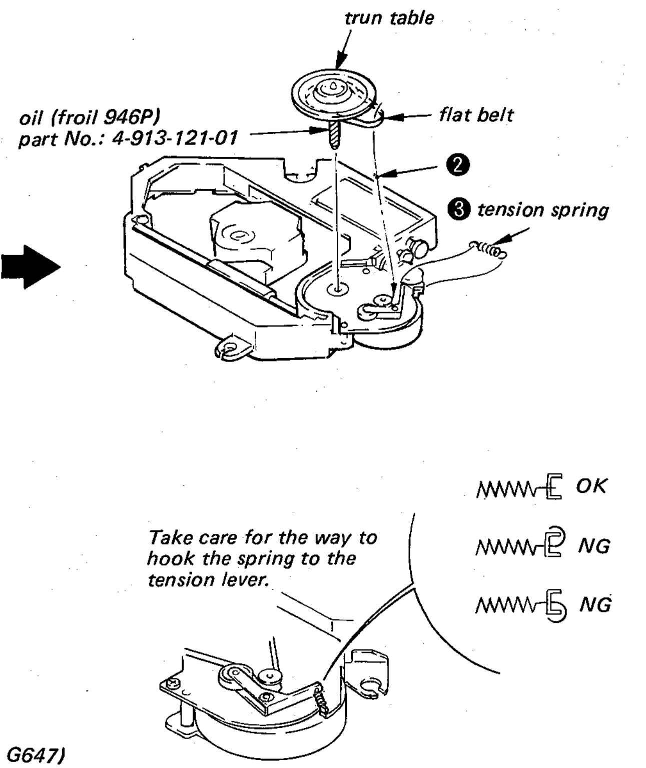
SPINDLE MOTOR


❷ stopper washer
❶ tension lever
motor bracket
spindle motor (M902)
motor bracket (B)
❹ precition screw P1.4 x 2.5
❹ precition screw P1.4 x 2.5
❸ precition screw P1.7 x 1.6
❻ tapping screws B1.4 x 5
spindle motor section
❺ leaf spring

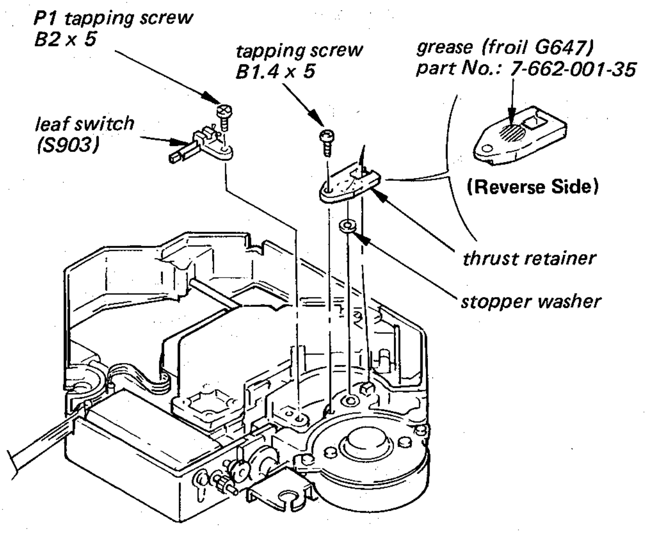
(Caution on installing)
When installing spindle motor section, push motor in the direction of arrow and tighten the screws.

Refer to NOTE ON HADLING THE OPTICAL PICK-UP BLOCK (KSS-160A) on page 3.

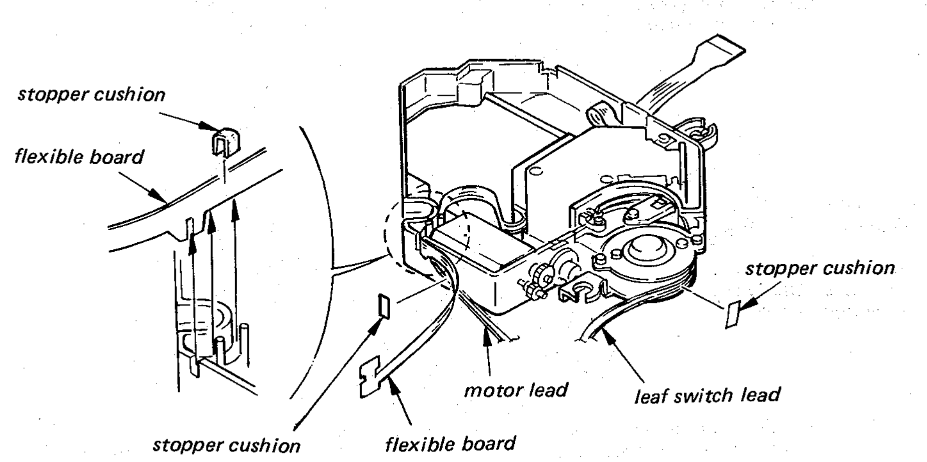
TURN TABLE, FLAT BELT


trun table
oil (froil 946P)
part No.: 4-913-121-01
flat belt
❷
❸ tension spring
OK
NG
NG
Take care for the way to hook the spring to the tension lever.

LEAF SWITCH, THRUST RETAINER


P1 tapping screw B2 x 5
tapping screw B1.4 x 5
grease (froil G647)
part No.: 7-662-001-35
leaf switch (S903)
(Reverse Side)
thrust retainer
stopper washer

WIRE ARRANGMENT

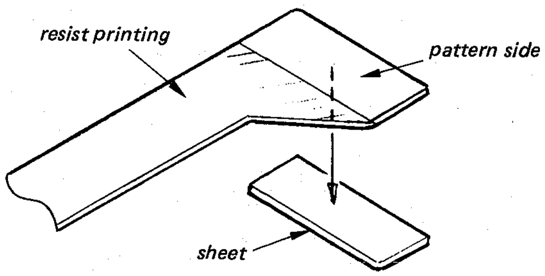

stopper cushion
flexible board
stopper cushion
motor lead
leaf switch lead
stopper cushion
flexible board

2-3. ADDITIONAL PROCESSING FOR THE CONNECTION FLEXIBLE BOARD

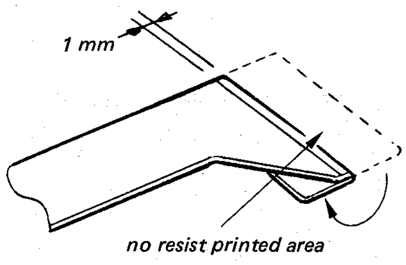
When replacing the connection flexible board, perform the following process to the portion on the flexible board which to be soldered to the main board side.

Procedure:

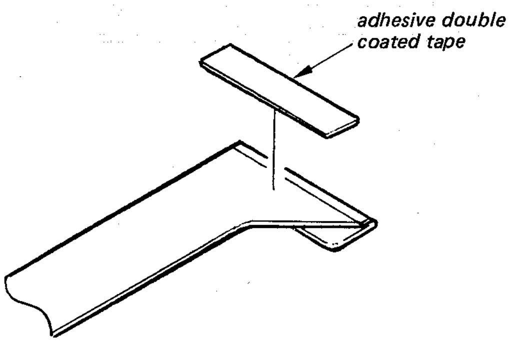
1. Remove the sheet from the conneciton flexible board.


resist printing
pattern side
sheet

2. Bend the no resist printed area with left 1 mm.


1 mm
no resist printed area

3. Stick a adhesive double coated tape on the resist located in the shaded area.


adhesive double coated tape

4. Solder the connection flexible board to the main board.

SECTION 3

ELECTRICAL ADJUSTMENTS

Notes on Adjustment

1. Perform adjustments except for RECHARGEABLE VOLTAGE ADJUSTMENT in service mode. Be sure to release service mode after completing adjustment.
   (Refer to "Service Mode (service program)" on page 6 – 8.)
2. Perform adjustments in the order given.
3. Use YEDS-18 disc (part No.: 3-702-101-01) unless otherwise indicated.
4. Power supply voltage: DC 9 V
   HOLD switch: OFF

PREPARATION

Put the set into service mode (see page 6 – 8) and perform the following checks. Repair if there are any abnormalities.

- **Sled Motor Check**

1. Press the OPEN button and open the top panel.
2. Press the ▶▶| , |◀◀ keys and make sure that the UPF moves smoothly, without catching, from the inmost → outmost → inmost circumference.
   ▶▶| : UPF moves outward
   |◀◀ : UPF moves inward

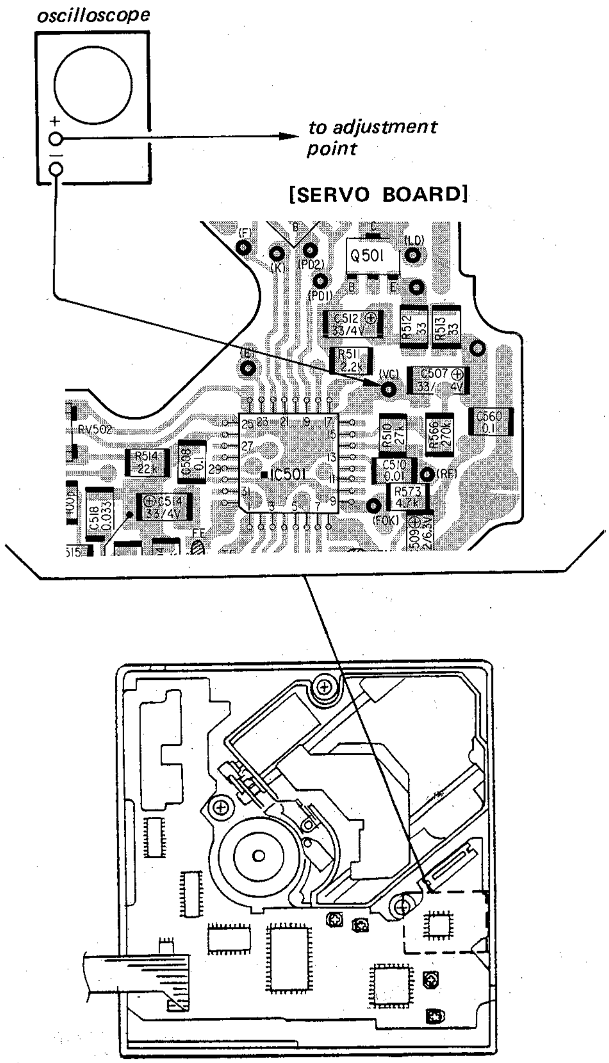
- **Focus Search Check**

1. Press the OPEN button and open the top panel.
2. Press the ▶❚❚ key. (Focus search is performed continuously.)
3. Observe the UPF objective lens and check that it moves smoothly up and down with no catching or noises.
4. Press the ■ key.
   Check that focus search operation stops. If it does not, press the ■ key again, longer but spindle motor continues rotating.
   Pullout AC cord to stop rotating.

VC (1/2 Vcc) Connecting Point

SKEW ADJUSTMENT
FOCUS BIAS ADJUSTMENT
TRACKING BALANCE ADJUSTMENT
TRACKING GAIN ADJUSTMENT

When the adjustments above are performed, connect the ⊖ side of oscilloscope to the point below.


oscilloscope
+
−
to adjustment point
[SERVO BOARD]
(F)
(K)
(PD2)
(PD1)
(LD)
Q501
(E)
(VC)
C512 33/4V
R512 33
R513 33
R511 2.2k
C507 33/4V
RV502
R514 22k
C508 0.1
C518 0.033
C514 33/4V
IC501
R510 27k
R566 270k
C560 0.1
C510 0.01
(RF)
R573 4.7k
(FOK)
C509 22/6.3V

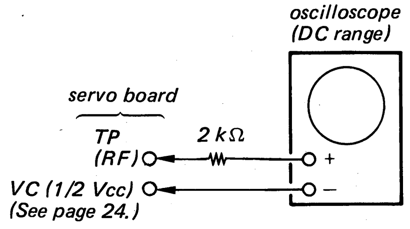
Skew Adjustment

- This adjustment should be performed when replacing UPF.
- UPF spacers are supplied with UPF.
  There are 4 kinds of spacers as listed below in UPF spacers.

color	thickness t (mm)
yellow	0.1
black	0.188
green	0.25
white	0.35

Conditions:
The set should be placed either horizontally.

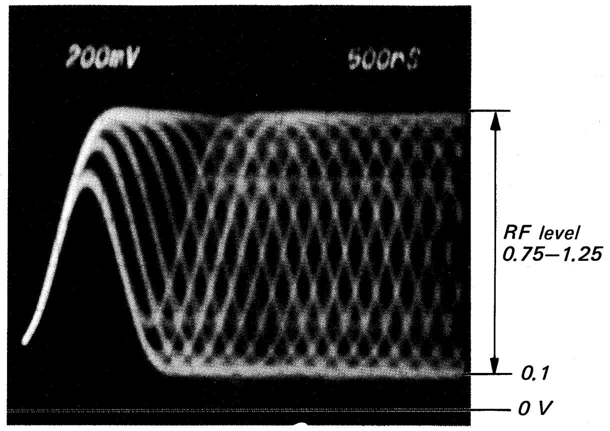
Adjustment Procedure:


oscilloscope
(DC range)
servo board
TP
(RF)
2 kΩ
+
VC (1/2 Vcc)
(See page 24.)
–

1. Put the set into service mode (see page 6 – 8).
2. Unplug the external power supply and replace UPF. At this time, use t = 0.1 mm UPF spacer.
3. Connect the oscilloscope to servo board test point TP (RF) and connect power supply.
4. Press the ▶▶| and |◀◀ keys to move the UPF to the center. (Move the UPF to the music area on the disc to enable easy visibility of the eye pattern.)
5. Insert the disc (YEDS-18) and close the top panel.
6. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
7. Press the KEY-MODE button. (Tracking and sled go ON.)
8. Confirm the eye pattern of the oscilloscope.
9. Confirm the eye pattern similarly when replacing UPF spacer with t = 0.188 mm, t = 0.25 mm, and t = 0.35 mm.
10. Unplug the external power supply and install UPF spacer which makes the clearest eye pattern. A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.
11. After adjustment, release service mode (see page 6 – 8).

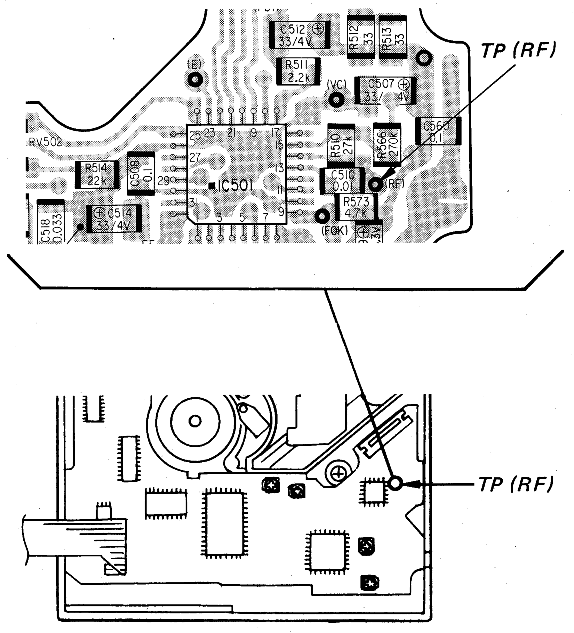
- **RF Signal Reference Waveform (eye pattern)**

VOLT/DIV: 200 mV
TIME/DIV: 500 nS



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

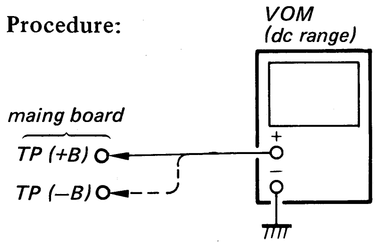
Adjustment Location: servo board


TP (RF)
C512 33/4V
R512
R513
R511 2.2k
C507 33/4V
RV502
R514 22k
C598
IC501
R510 27k
R566
C510 0.01
C569
R573 4.7k
C518 0.033
C514 33/4V
(FOK)
(RF)
TP (RF)

Refer to DISASSEMBLY AND REASSEMBLY (page 19 – 22) for UPF and UPF spacers replacement.

+B/–B Voltage Adjustment

Adjustment Procedure:


VOM
(dc range)
maing board
TP (+B)
TP (–B)
+
–

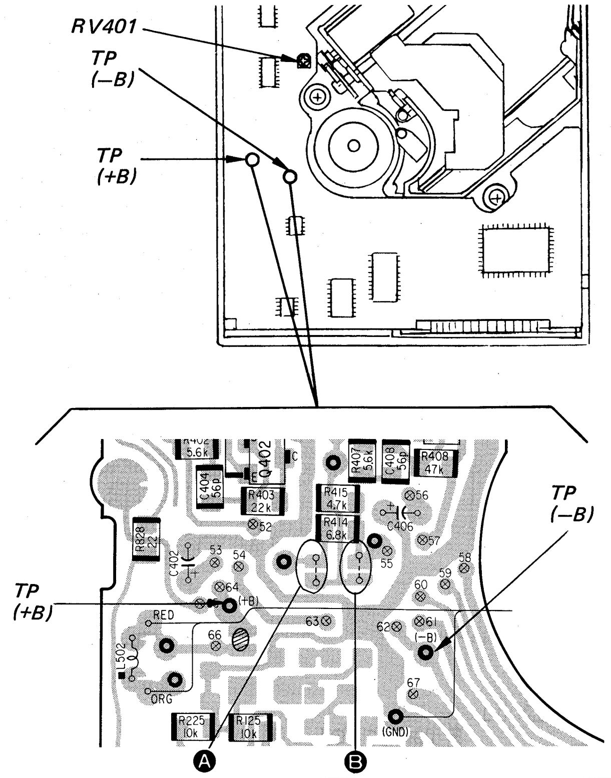
1. Put the set into service mode (see page 6 – 8).
2. Connect the VOM to main board test point TP (+B).
3. Adjust RV401 for 4.65 to 4.7 V reading on the VOM.
4. Connect the VOM to main board test point TP (–B).
5. Adjust the pattern connection (Ⓐ or Ⓑ) to obtain –4.8 to –5.4 V reading on the VOM.

pattern connection		VOM reading
Ⓐ	Ⓑ	
○	○	down
×	○	↑
○	×	↓
×	×	up

○: short ×: open

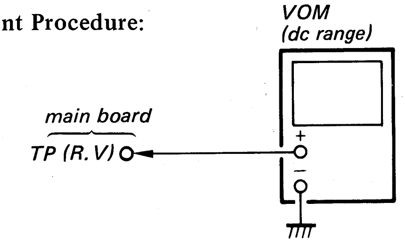
6. After adjustment, release service mode (see page 6 – 8).

Adjustment Location: main board


RV401
TP (–B)
TP (+B)
TP (–B)
TP (+B)
R408 47k
R403 22k
R415 4.7k
R414 6.8k
Q402
C404
C406
RED
ORG
R225 10k
R125 10k
(GND)
(–B)
(+B)
Ⓐ
Ⓑ

Rechargeable Voltage Adjustment

Adjustment Procedure:

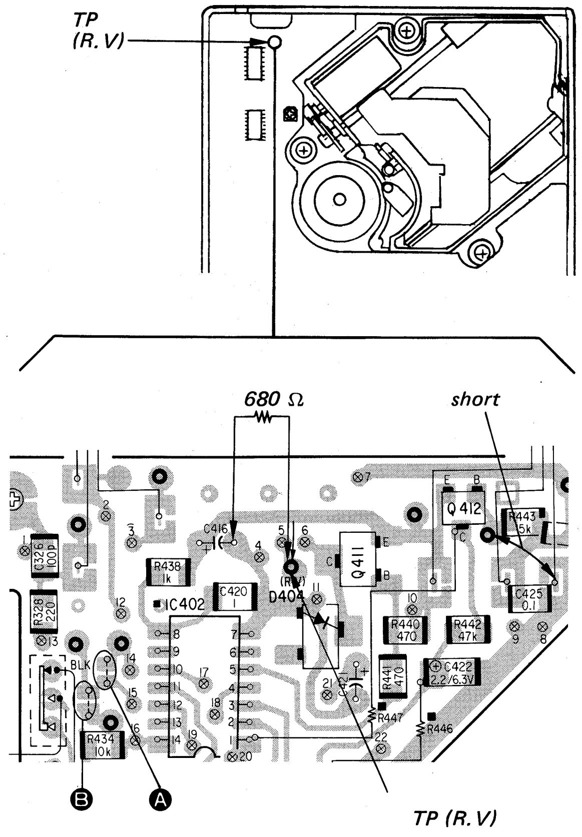

VOM
(dc range)
main board
TP (R.V)
+
–

1. Connect the VOM to main board test point TP (R.V).
2. Short between the Q401 base and GND. Connect a 680 Ω resistor between pin ② and pin ③ of CNJ401 as shown below..
3. Apply DC 9 V with requrated dc power supply from external power jack CN401.
4. Adjust the pattern connection (Ⓐ or Ⓑ) to obtain 7.25 to 7.47 V reading on the VOM.

pattern connection		VOM reading
Ⓐ	Ⓑ	
○	○	down
×	○	↑
○	×	↓
×	×	up

○: short ×: open

Adjustment Location: main board

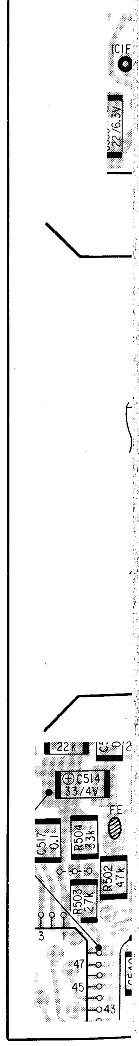

TP (R.V)
680 Ω
short
Q412
Q411
R443
IC402
C420
D404
R438 1k
R440 470
R442 47k
C422 2.2/6.3V
C425
R434 10k
R447
R446
BLK
TP (R.V)
Ⓑ
Ⓐ

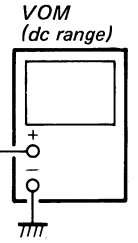
PLL Free

Check/Ac

1. Discon
   diagrar
2. Conne
   point
3. Put th
4. Check
   4.3218
   it is 4.
5. After
   6 – 8)
6. Short

Check/Ad




VOM
(dc range)
+
–

ee page 6 – 8).

oard test point TP

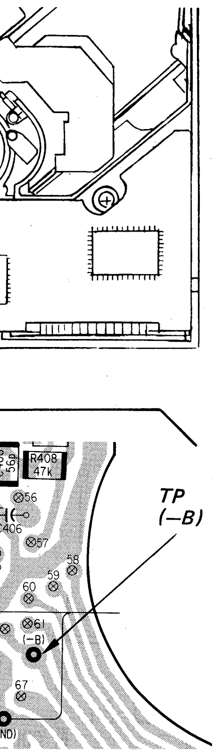
V reading on the

oard test point TP

n (**A** or **B**) to
on the VOM.

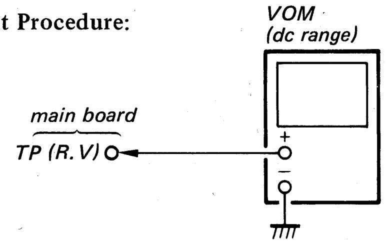
ding
n

ce mode (see page


R408
47k
56
57
58
59
60
61
(–B)
67
ND)
TP
(–B)

Rechargeable Voltage Adjustment

Adjustment Procedure:

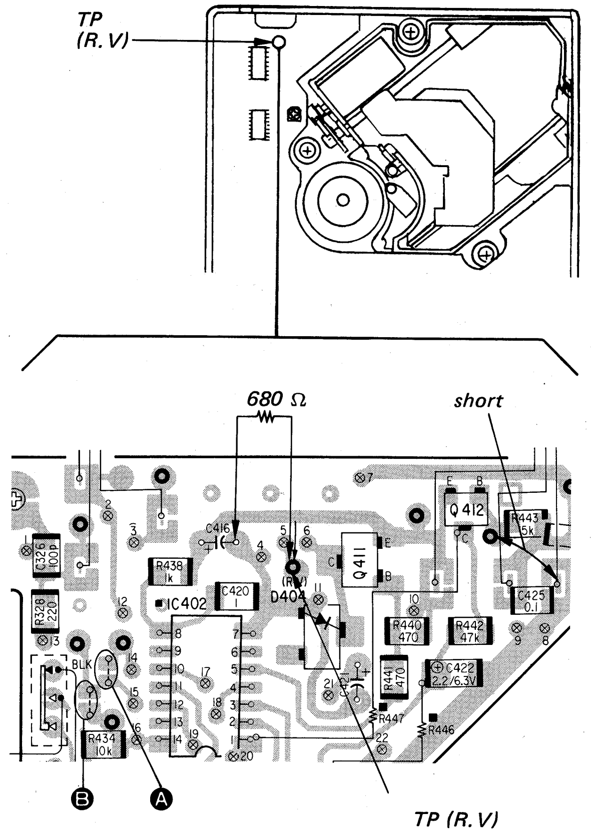

VOM
(dc range)
main board
TP (R. V)
+
–

1. Connect the VOM to main board test point TP (R.V).
2. Short between the Q401 base and GND. Connect a 680 Ω resistor between pin ② and pin ③ of CNJ401 as shown below..
3. Apply DC 9 V with requrated dc power supply from external power jack CN401.
4. Adjust the pattern connection (**A** or **B**) to obtain 7.25 to 7.47 V reading on the VOM.

pattern connection		VOM reading
A	**B**	
○	○	down
×	○	↕
○	×	
×	×	up

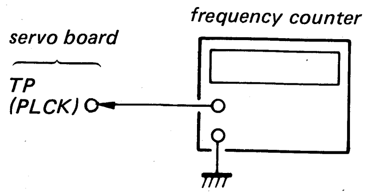
○: short ×: open

Adjustment Location: main board


TP
(R. V)
680 Ω
short
Q412
R443
C416
C420
D404
Q411
R438
IC402
C425
R440
470
R442
47k
R441
470
C422
2.2/6.3V
R447
R446
R434
10k
B
A
TP (R. V)

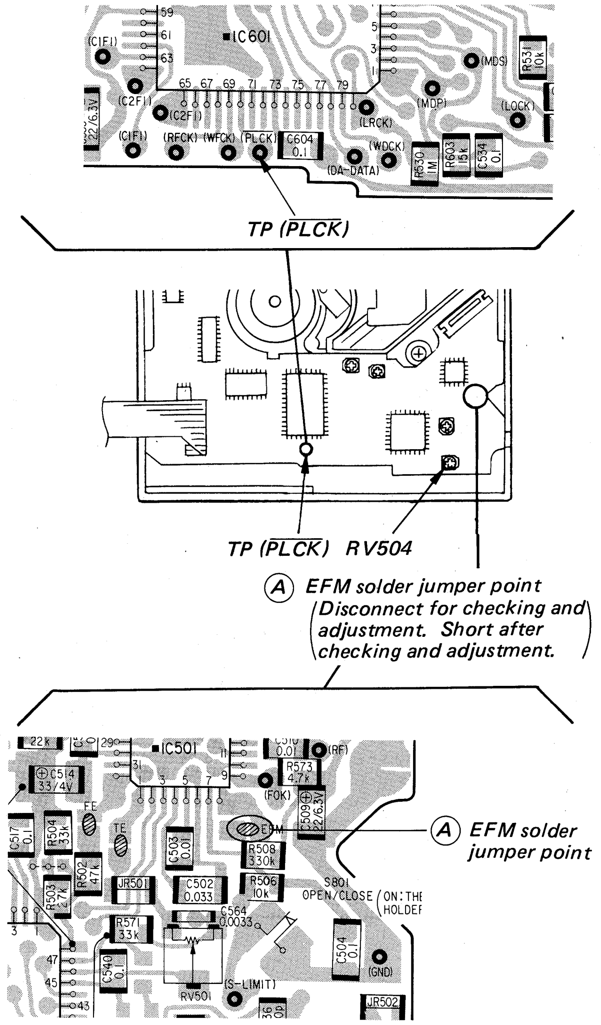
PLL Free Run Frequency Check and Adjustment

Check/Adjustment Procedure:


frequency counter
servo board
TP
(PLCK)

1. Disconnect the jumper point Ⓐ (EFM) in the diagram below.
2. Connect a frequency counter to servo board test point TP $(\overline{PLCK})$.
3. Put the set into service mode (see page 6 – 8).
4. Check that the frequency counter reading is 4.3218 ±0.04 MHz. If not, adjust RV504 so that it is 4.3218 ±0.01 MHz.
5. After adjustment, release service mode (see page 6 – 8).
6. Short the jumper point shorted in step 1.

Check/Adjustment Location: servo board

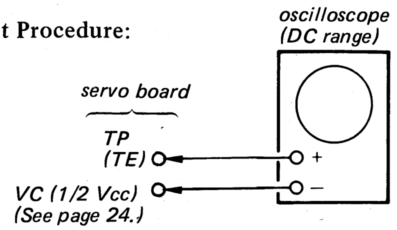

IC601
(C1F1)
(C2F)
(C2F1)
(RFCK)
(WFCK)
(PLCK)
C604
(LRCK)
(MDS)
(MDP)
(LOCK)
(WDCK)
(DA-DATA)
R603
C594
TP (PLCK)
TP (PLCK) RV504
Ⓐ EFM solder jumper point
(Disconnect for checking and adjustment. Short after checking and adjustment.)
IC501
C514
33/4V
R573
4.7k
(FOK)
(RF)
C509
22/6.3V
TE
EFM
R508
330k
R506
10k
C502
0.033
JR501
R571
33k
C564
0.0033
S801
OPEN/CLOSE (ON:THE HOLDER
RV501
(S-LIMIT)
C504
0.1
(GND)
JR502
Ⓐ EFM solder jumper point

Tracking Balance Adjustment

Conditions:

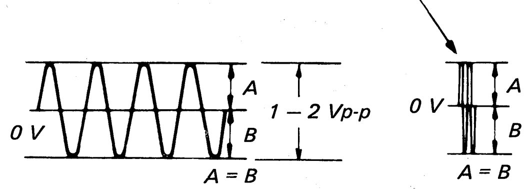
The set should be placed either horizontally.

Adjustment Procedure:


oscilloscope
(DC range)
servo board
TP
(TE)
VC (1/2 Vcc)
(See page 24.)
+
–

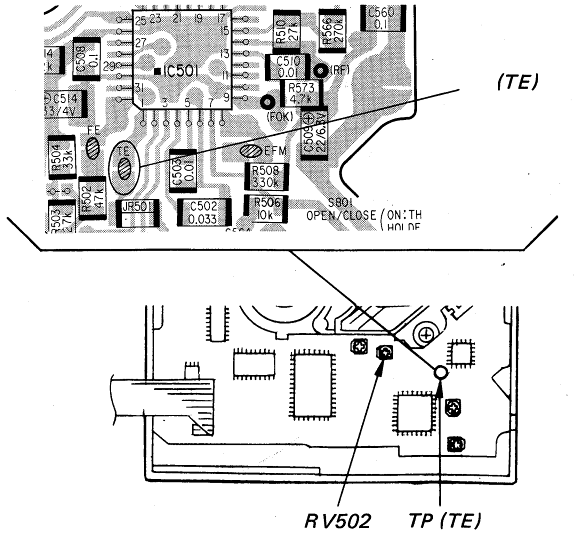
1. Connect the oscilloscope to servo board TP (TE).
2. Put the set into service mode (see page 6 – 8).
3. Press the ▶▶| and |◀◀ keys to move the UPF to the center.
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Adjust RV502 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 V.

Note: Take sweep time as long as possible to obtain best waveform.


0 V
A
B
1 – 2 Vp-p
A = B
0 V
A
B
A = B

7. Unplug the external power supply to stop spindle motor from rotating.
8. After adjustment, release service mode (see page 6 – 8).

Adjustment Location: servo board

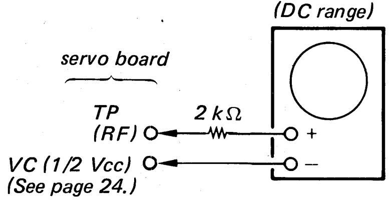

IC501
(TE)
C510
0.01
R573
4.7k
(RF)
(FOK)
EFM
R508
330k
R506
10k
C502
0.033
JR501
S801
OPEN/CLOSE (ON:TH HOLDE
RV502 TP (TE)

Focus Bias Adjustment

Conditions:

The set should be placed either horizontally.

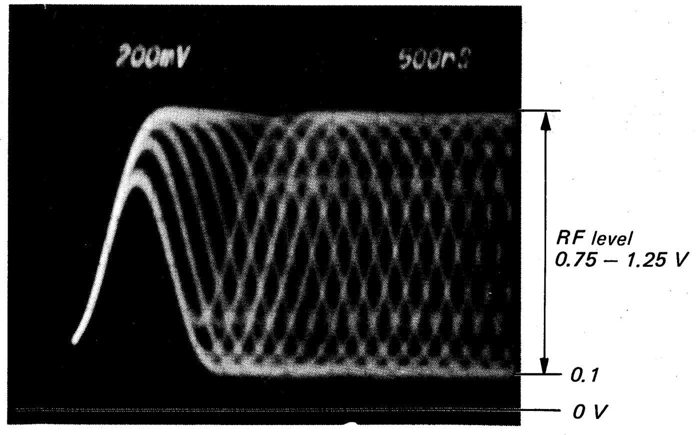
Adjustment Procedure:


oscilloscope
(DC range)
servo board
TP
(RF)
2 kΩ
VC (1/2 Vcc)
(See page 24.)
+
–

1. Put the set into service mode (see page 6 – 8).
2. Connect the oscilloscope to servo board test point TP (RF).
3. Press the ▶▶| and |◀◀ keys to move the UPF to the center. (Move the UPF to the music area on the disc to enable easy visibility of the eye pattern).
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Press the KEY-MODE button. (Tracking and sled go ON.)
7. Adjust RV503 so that the oscilloscope waveform eye pattern is good. A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

- **RF Signal Reference Waveform (eye pattern)**

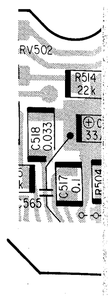
VOLT/DIV: 200 mV
TIME/DIV: 500 nS

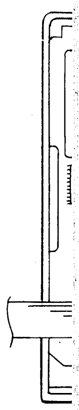


When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

8. Unplug
   motor
9. After
   6 – 8).

Adjustme

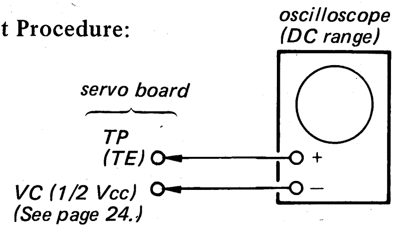

RV502
R514
22k
C518
0.033
C517
0.1



acking Balance Adjustment

onditions:
e set should be placed either horizontally.

djustment Procedure:



Connect the oscilloscope to servo board TP (TE).

Put the set into service mode (see page 6 – 8).

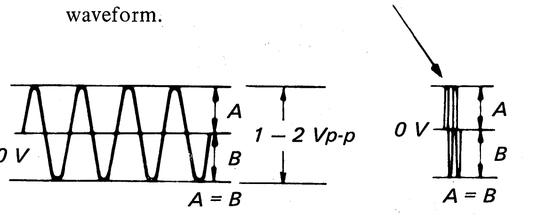
Press the ▶▶| and |◀◀ keys to move the UPF to the center.

Insert the disc (YEDS-18) and close the top panel.

Press the ▶❚❚ key.
(It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)

Adjust RV502 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 V.

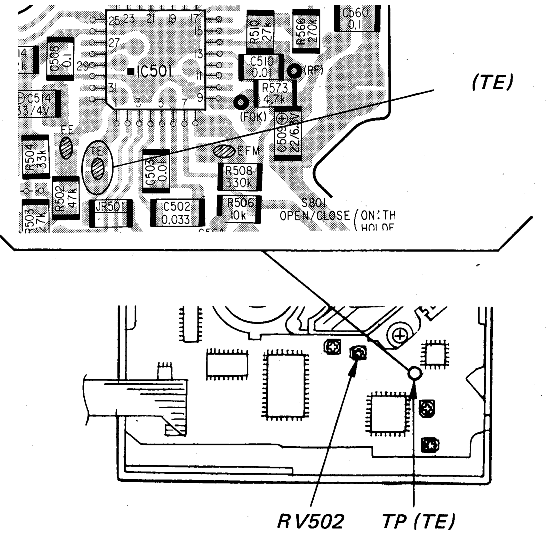
Note: Take sweep time as long as possible to obtain best waveform.



Unplug the external power supply to stop spindle motor from rotating.

After adjustment, release service mode (see page 6 – 8).

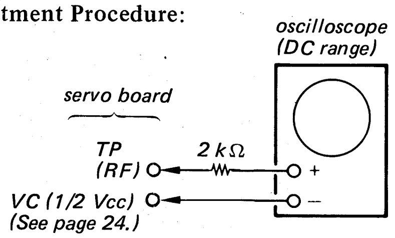
justment Location: servo board



Focus Bias Adjustment

Conditions:
The set should be placed either horizontally.

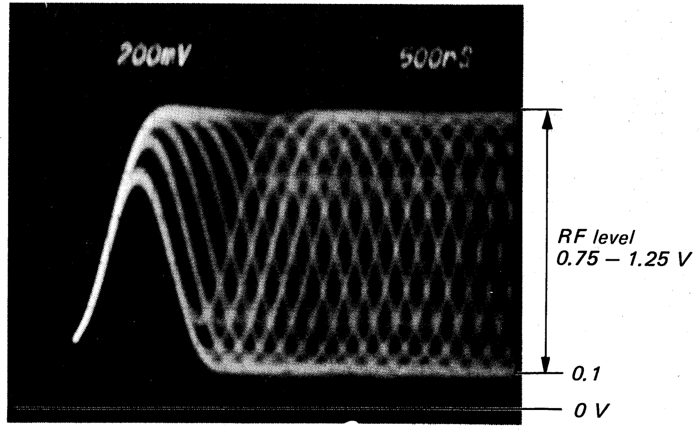
Adjustment Procedure:



1. Put the set into service mode (see page 6 – 8).
2. Connect the oscilloscope to servo board test point TP (RF).
3. Press the ▶▶| and |◀◀ keys to move the UPF to the center. (Move the UPF to the music area on the disc to enable easy visibility of the eye pattern).
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Press the KEY-MODE button. (Tracking and sled go ON.)
7. Adjust RV503 so that the oscilloscope waveform eye pattern is good. A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

- **RF Signal Reference Waveform (eye pattern)**

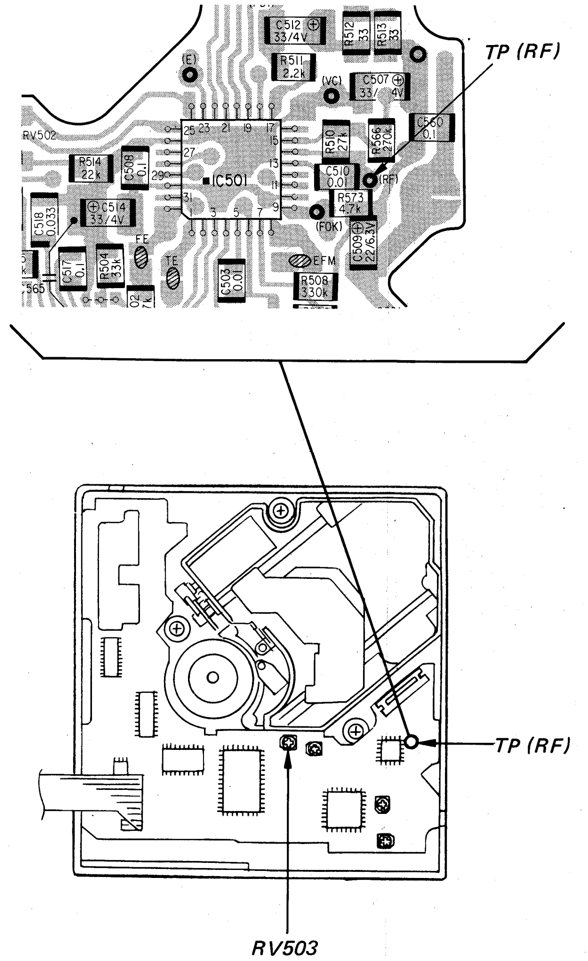
VOLT/DIV: 200 mV
TIME/DIV: 500 nS



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

8. Unplug the external power supply to stop spindle motor from rotating.
9. After adjustment, release service mode (see page 6 – 8).

Adjustment Location: servo board



Reference

Focus/Tracking Gain Adjustment

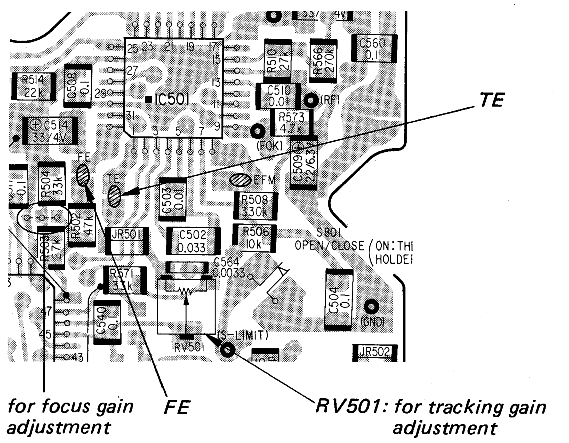
A frequency responce analyzer or CD jig is necessary in order to perform this adjustment exactly.
However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perfrom this adjustment.
Focus/tracking gain determines the pick-up followup (vertical and horizontal) relative to mechanical noise and metchnical shock when the 2-axis device operate. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is high, the noise when the 2-axis device operates increases.
- When gain is low, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment is to be performed when replacing the following parts:
UPF, RV501 (tracking gain VR)

> On this set, it is very difficult to simplify this adjustment. For those sets on which symptoms such as "occasional skipping" are hard to discover, or it is hard to tell if the set has been repaired, use the CD jig and perform this adjustment. Refer to the diagram below for connection of the CD jig. The adjustment procedure is described in the separate CD Jig Instruction Manual.

Please be careful no to move RV501 (tracking gain volume) when working on the set.


IC501
TE
S801 OPEN/CLOSE (ON:THE HOLDER)
for focus gain adjustment
FE
RV501: for tracking gain adjustment

Remove the solder jumpers at the TE and FE locations and connect the CD jig. (Connect the points on both TE and FE which are closer to IC501 to the output from the CD jig, and the points farther to IC501 to the input from the CD jig.)
Adjust focus gain with the two solder bridges which are indicated as being for focus gain adjustment.

SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM

- See page 41 for Semiconductor Lead Layouts.

Note on Mounting Diagram:

- ▨ : side B pattern. (main board)
- ⊗ : Through hole. (main board)

side B pattern

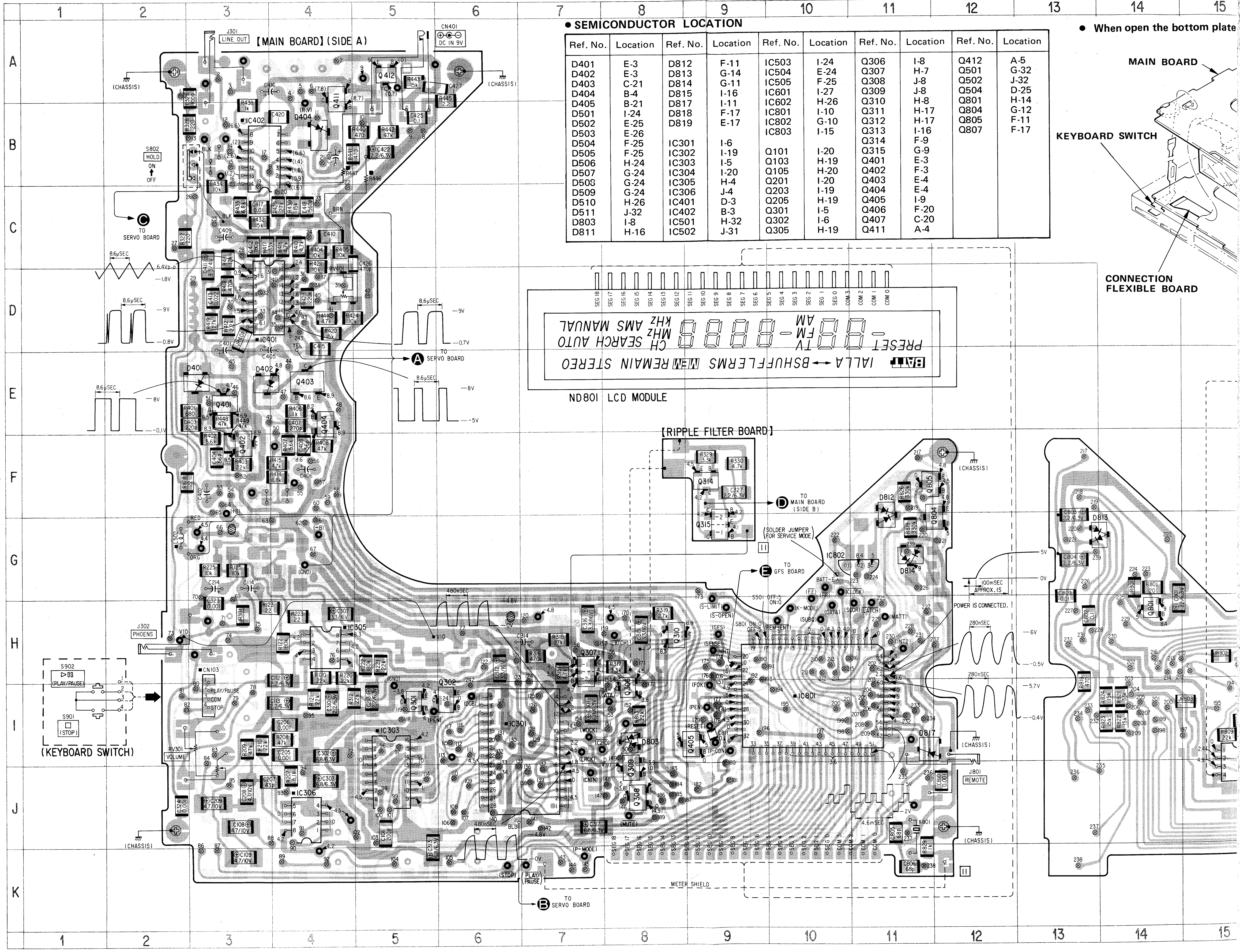
● ·⊗—⊗ (servo board)

Through hole

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D401	E-3	D812	F-11	IC503	I-24	Q306	I-8	Q412	A-5
D402	E-3	D813	G-14	IC504	E-24	Q307	H-7	Q501	G-32
D403	C-21	D814	G-11	IC505	F-25	Q308	J-8	Q502	J-32
D404	B-4	D815	I-16	IC601	I-27	Q309	J-8	Q504	D-25
D405	B-21	D817	I-11	IC602	H-26	Q310	H-8	Q801	H-14
D501	I-24	D818	F-17	IC801	I-10	Q311	H-17	Q804	G-12
D502	E-25	D819	E-17	IC802	G-10	Q312	H-17	Q805	F-11
D503	E-26			IC803	I-15	Q313	I-16	Q807	F-17
D504	F-25	IC301	I-6			Q314	F-9		
D505	F-25	IC302	I-19	Q101	I-20	Q315	G-9		
D506	H-24	IC303	I-5	Q103	H-19	Q401	E-3		
D507	G-24	IC304	I-20	Q105	H-20	Q402	F-3		
D508	G-24	IC305	H-4	Q201	I-20	Q403	E-4		
D509	G-24	IC306	J-4	Q203	I-19	Q404	E-4		
D510	H-26	IC401	D-3	Q205	H-19	Q405	I-9		
D511	J-32	IC402	B-3	Q301	I-5	Q406	F-20		
D803	I-8	IC501	H-32	Q302	I-6	Q407	C-20		
D811	H-16	IC502	J-31	Q305	H-19	Q411	A-4		

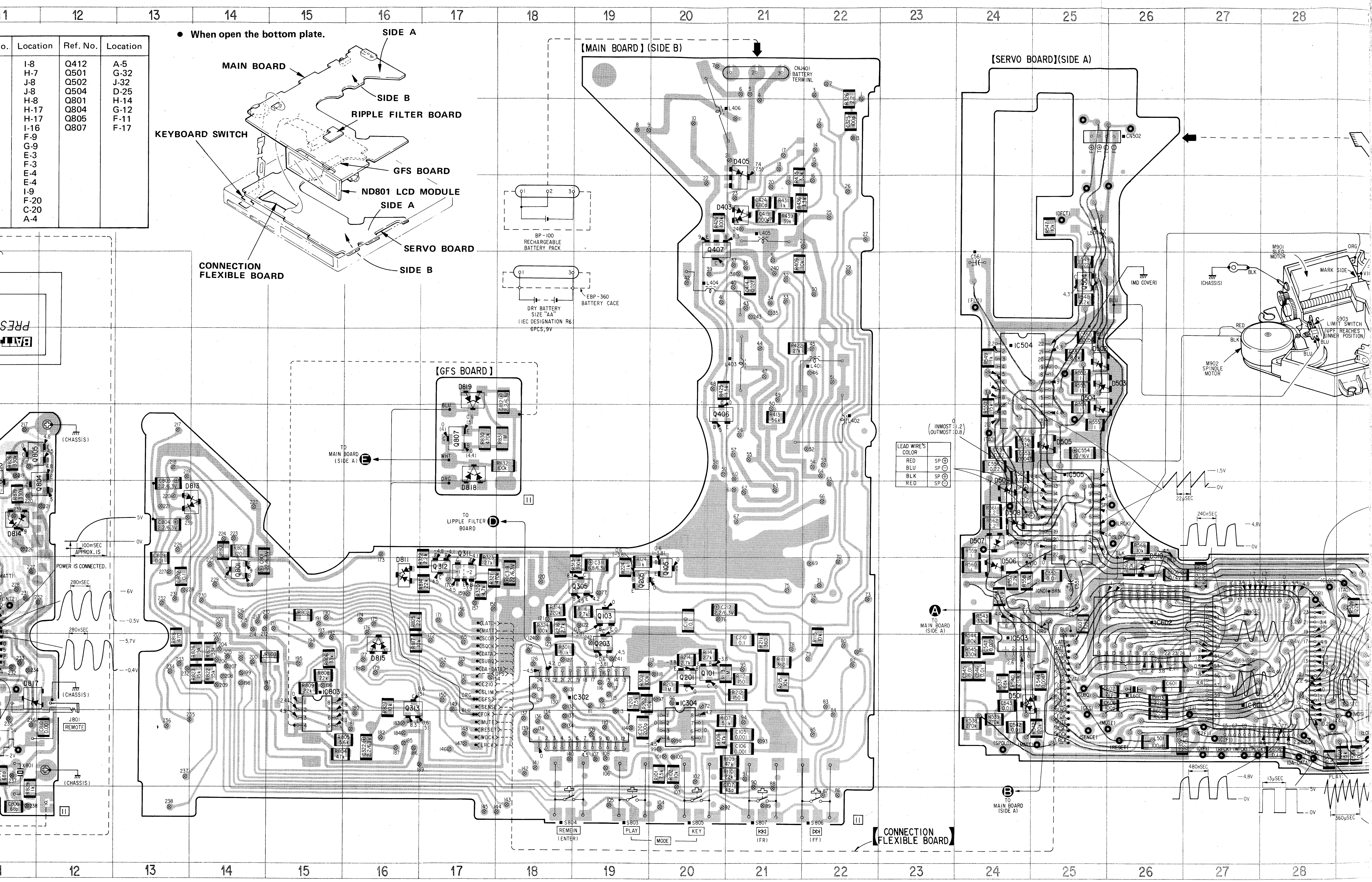
- When open the bottom plate

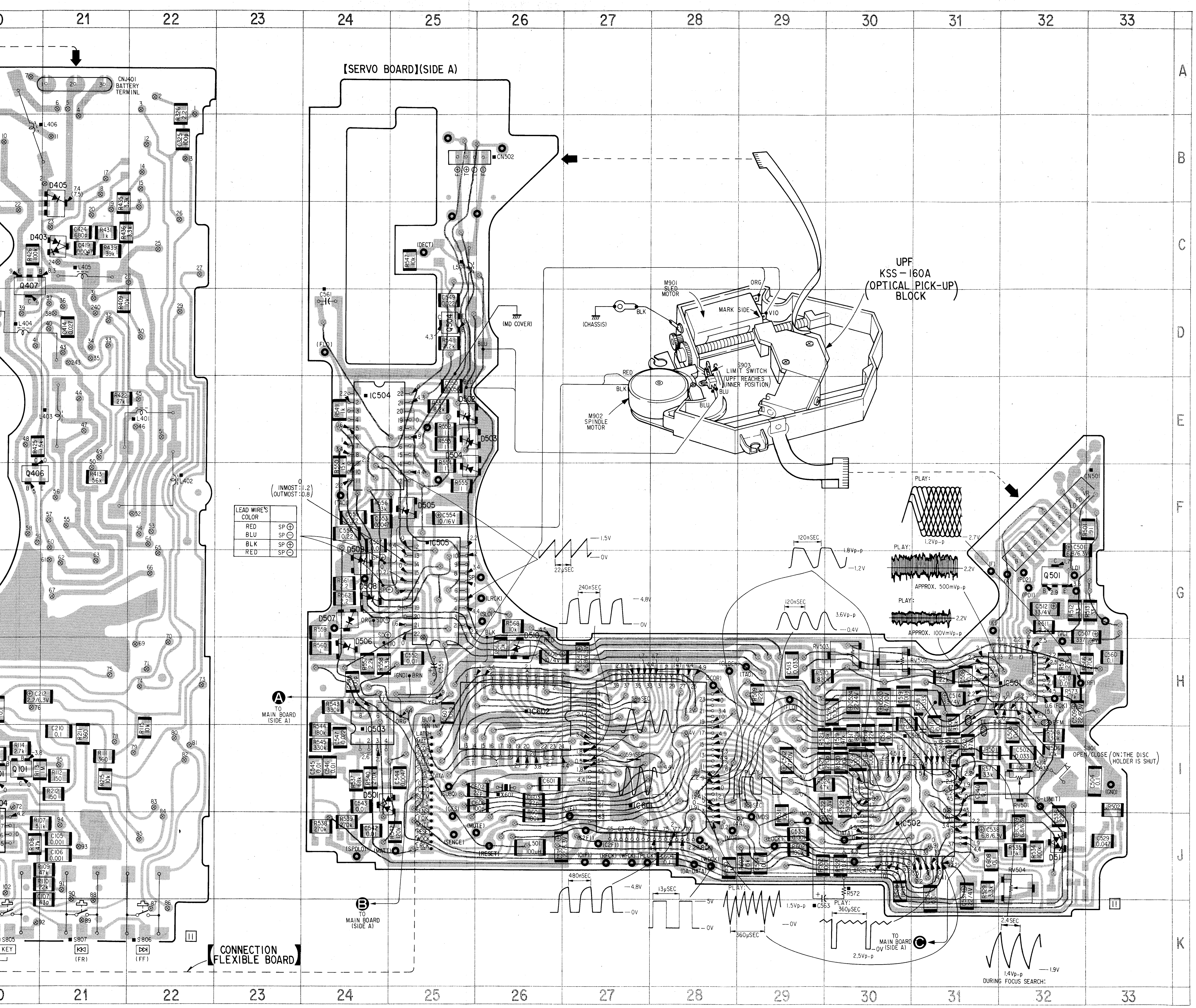


[MAIN BOARD] (SIDE A)
J301
LINE OUT
CN401
DC IN 9V
(CHASSIS)
S802
HOLD
ON
OFF
TO SERVO BOARD
IC401
IC402
Q401
Q402
Q403
Q404
Q411
Q412
D401
D402
D404
8.6μSEC
6.4Vp-p
-1.8V
-9V
-0.8V
-0.7V
-8V
-5V
-0.1V
TO SERVO BOARD
ND801 LCD MODULE
PRESET
TV
FM
AM
CH
MHz
kHz
SEARCH AUTO
AMS MANUAL
BATT
IALLA
BSHUFFLE
RMS
MEM
REMAIN
STEREO
[RIPPLE FILTER BOARD]
Q314
Q315
TO MAIN BOARD (SIDE B)
(SOLDER JUMPER FOR SERVICE MODE)
TO GFS BOARD
IC802
IC801
D812
D813
D814
D817
Q801
Q804
Q805
POWER IS CONNECTED.
100mSEC APPROX. 1S
280nSEC
480nSEC
4.6mSEC
J302
PHONES
S902
PLAY/PAUSE
S901
STOP
(KEYBOARD SWITCH)
RV301
VOLUME
CN103
IC301
IC303
IC305
IC306
Q301
Q302
Q305
Q307
Q308
Q309
Q310
D803
J801
REMOTE
X801
METER SHIELD
TO SERVO BOARD
MAIN BOARD
KEYBOARD SWITCH
CONNECTION FLEXIBLE BOARD
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

o.	Location	Ref. No.	Location
	I-8	Q412	A-5
	H-7	Q501	G-32
	J-8	Q502	J-32
	J-8	Q504	D-25
	H-8	Q801	H-14
	H-17	Q804	G-12
	H-17	Q805	F-11
	I-16	Q807	F-17
	F-9		
	G-9		
	E-3		
	F-3		
	E-4		
	E-4		
	I-9		
	F-20		
	C-20		
	A-4		

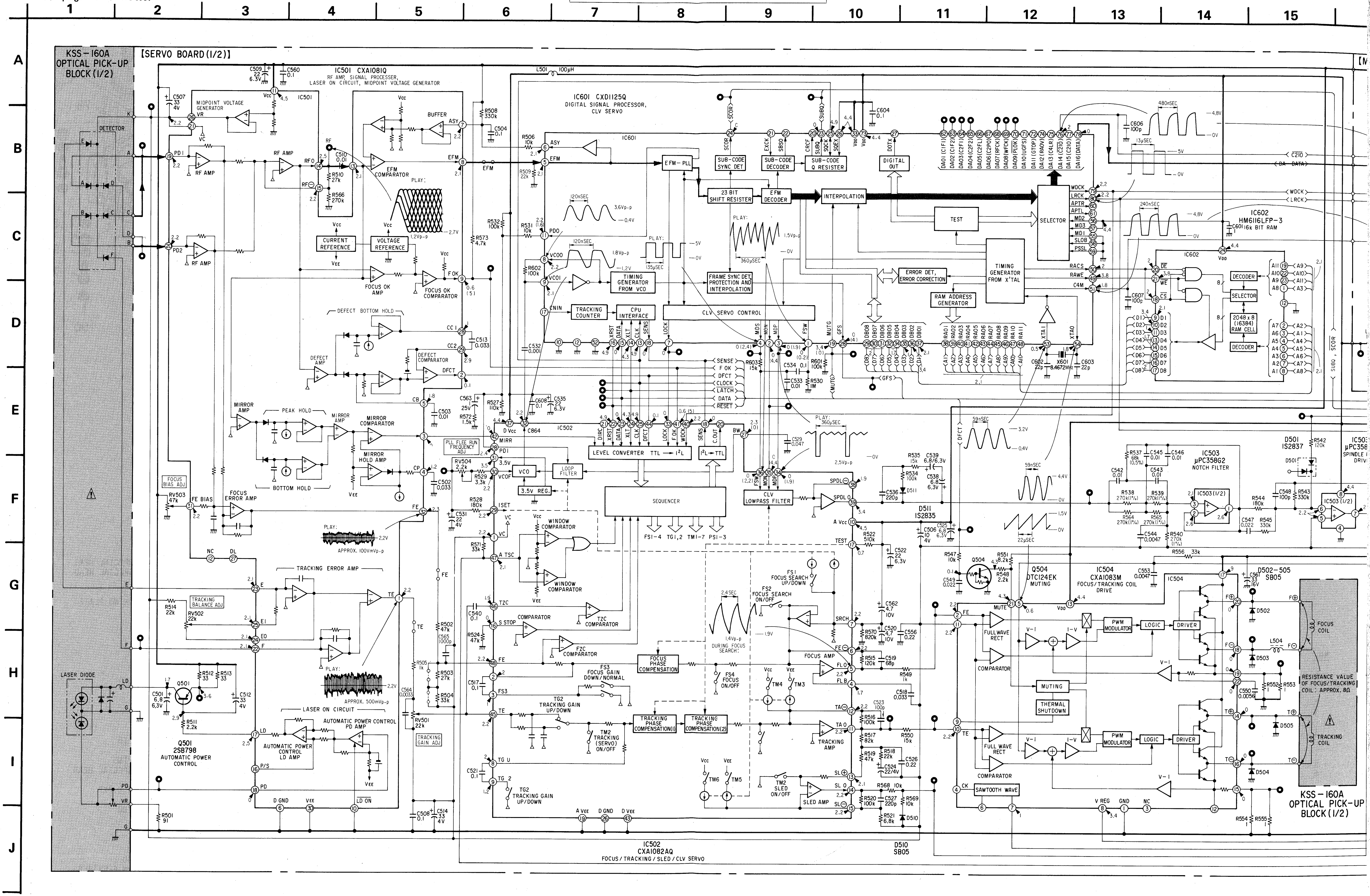
- **When open the bottom plate.**

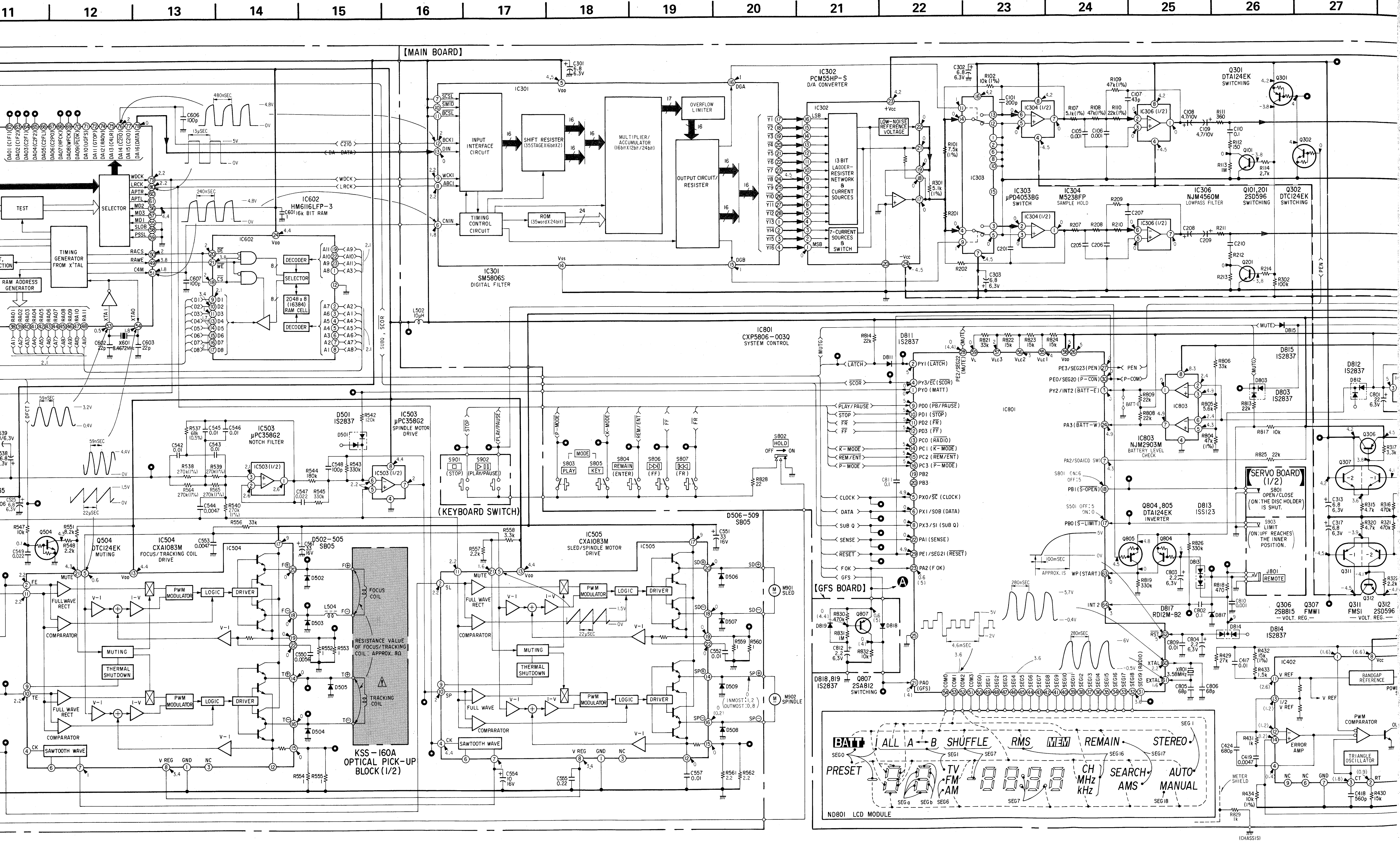

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
SIDE A
MAIN BOARD
SIDE B
RIPPLE FILTER BOARD
KEYBOARD SWITCH
GFS BOARD
ND801 LCD MODULE
SIDE A
SERVO BOARD
CONNECTION FLEXIBLE BOARD
SIDE B
【MAIN BOARD】(SIDE B)
CNJ401 BATTERY TERMINL
BP-100 RECHARGEABLE BATTERY PACK
EBP-360 BATTERY CACE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
【GFS BOARD】
D819 D818 Q807 R830 470k R831 1M R832 100k C812 2.2/6.3V
BLU WHT ORG
TO MAIN BOARD (SIDE A) E
TO LIPPLE FILTER BOARD D
(CHASSIS)
POWER IS CONNECTED.
100mSEC APPROX. 1S
5V 0V
280nSEC -6V -0.5V
280nSEC 5.7V -0.4V
J801 REMOTE
X801
D805 D804 D813 D814 D817 Q801 Q805 Q804
D811 D815 Q311 Q312 Q313 IC803 IC302 IC304
Q305 Q203 Q103 Q201 Q101 Q205 Q105
D405 D403 Q407 Q406 L401 L402 L403 L404 L405 L406
LATCH MATT SCOR SQCK DATA SUBQ DA-DATA C210 SLIM GFS SENSE FOK MUTE RESET WCK LRCK
S804 REMEIN (ENTER)
S803 PLAY
S805 KEY
MODE
S807 ⏮ (FR)
S806 ⏭ (FF)
【CONNECTION FLEXIBLE BOARD】
【SERVO BOARD】(SIDE A)
CN502
(DECT) (FLD) (MD COVER) (CHASSIS)
IC504 IC505 IC503 IC602 IC601
D501 D502 D503 D504 D505 D506 D507 D508 D509 D510
INMOST: 1.2 (OUTMOST: 0.8)
LEAD WIRE'S COLOR
RED SP⊕
BLU SP⊖
BLK SP⊕
RED SP⊖
1.5V 0V 22μSEC
240nSEC 4.8V 0V
TO MAIN BOARD (SIDE A) A
TO MAIN BOARD (SIDE A) B
M901 SLED MOTOR
MARK SIDE
ORG BLK RED BLU
S903 LIMIT SWITCH (UPFF REACHES INNER POSITION)
M902 SPINDLE MOTOR
480nSEC 4.8V 0V
13μSEC 5V 0V
360μSEC
PLAY


【SERVO BOARD】(SIDE A)
UPF KSS-160A (OPTICAL PICK-UP) BLOCK
M901 SLED MOTOR
M902 SPINDLE MOTOR
S903 LIMIT SWITCH (UPF REACHES INNER POSITION)
MARK SIDE
(CHASSIS)
(MD COVER)
CN502
CNJ401 BATTERY TERMINL
IC504
IC505
IC503
IC601
IC602
IC501
IC502
Q501
LEAD WIRE'S COLOR
RED SP⊕
BLU SP⊖
BLK SP⊕
RED SP⊖
0 (INMOST) 1.2 (OUTMOST) 0.8
TO MAIN BOARD (SIDE A)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT)
PLAY:
APPROX. 500mVp-p
APPROX. 100mVp-p
DURING FOCUS SEARCH:
1.4Vp-p
2.4SEC
2.5Vp-p
360μSEC
1.5Vp-p
13μSEC
480nSEC
240nSEC
120nSEC
22μSEC
【CONNECTION FLEXIBLE BOARD】
S805
S807 (FR)
S806 (FF)
KEY
21 22 23 24 25 26 27 28 29 30 31 32 33
A B C D E F G H I J K

4-2. SCHEMATIC DIAGRAM

- See page 40 for notes.


KSS-160A OPTICAL PICK-UP BLOCK (1/2)
[SERVO BOARD (1/2)]
IC501 CXA1081Q
RF AMP, SIGNAL PROCESSER, LASER ON CIRCUIT, MIDPOINT VOLTAGE GENERATOR
MIDPOINT VOLTAGE GENERATOR
DETECTOR
RF AMP
EFM COMPARATOR
BUFFER
CURRENT REFERENCE
VOLTAGE REFERENCE
FOCUS OK AMP
FOCUS OK COMPARATOR
DEFECT BOTTOM HOLD
DEFECT AMP
DEFECT COMPARATOR
MIRROR AMP
PEAK HOLD
MIRROR COMPARATOR
MIRROR HOLD AMP
BOTTOM HOLD
FOCUS BIAS ADJ
FOCUS ERROR AMP
TRACKING ERROR AMP
TRACKING BALANCE ADJ
LASER DIODE
Q501 2SB798 AUTOMATIC POWER CONTROL
LASER ON CIRCUIT
AUTOMATIC POWER CONTROL PD AMP
AUTOMATIC POWER CONTROL LD AMP
TRACKING GAIN ADJ
IC601 CXD1125Q
DIGITAL SIGNAL PROCESSOR, CLV SERVO
EFM-PLL
SUB-CODE SYNC DET
SUB-CODE DECODER
SUB-CODE Q RESISTER
DIGITAL OUT
23 BIT SHIFT RESISTER
EFM DECODER
INTERPOLATION
TEST
SELECTOR
TIMING GENERATOR FROM X'TAL
TIMING GENERATOR FROM VCO
FRAME SYNC DET, PROTECTION AND INTERPOLATION
ERROR DET, ERROR CORRECTION
RAM ADDRESS GENERATOR
TRACKING COUNTER
CPU INTERFACE
CLV SERVO CONTROL
X601 8.4672MHz
IC602 HM6116LFP-3
16k BIT RAM
DECODER
SELECTOR
2048×8 (16384) RAM CELL
IC502
PLL FLEE RUN FREQUENCY ADJ
VCO
LOOP FILTER
3.5V REG.
LEVEL CONVERTER TTL → I²L
I²L → TTL
SEQUENCER
FS1-4 TG1,2 TM1-7 PS1-3
WINDOW COMPARATOR
TZC COMPARATOR
FZC COMPARATOR
FOCUS PHASE COMPENSATION
FS1 FOCUS SEARCH UP/DOWN
FS2 FOCUS SEARCH ON/OFF
FS3 FOCUS GAIN DOWN/NORMAL
FS4 FOCUS ON/OFF
TG2 TRACKING GAIN UP/DOWN
TM2 TRACKING (SERVO) ON/OFF
TRACKING PHASE COMPENSATION(1)
TRACKING PHASE COMPENSATION(2)
1.4Vp-p DURING FOCUS SEARCH
FOCUS AMP
TRACKING AMP
SLED AMP
TM2 SLED ON/OFF
CLV LOWPASS FILTER
IC502 CXA1082AQ
FOCUS/TRACKING/SLED/CLV SERVO
D510 SB05
D511 1S2835
D501 1S2837
IC503 µPC358G2
NOTCH FILTER
Q504 DTC124EK MUTING
IC504 CXA1083M
FOCUS/TRACKING COIL DRIVE
D502-505 SB05
FULLWAVE RECT
COMPARATOR
MUTING
THERMAL SHUTDOWN
PWM MODULATOR
LOGIC
DRIVER
SAWTOOTH WAVE
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL : APPROX. 8Ω
APPROX. 100mVp-p
APPROX. 500mVp-p
PLAY:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J


11
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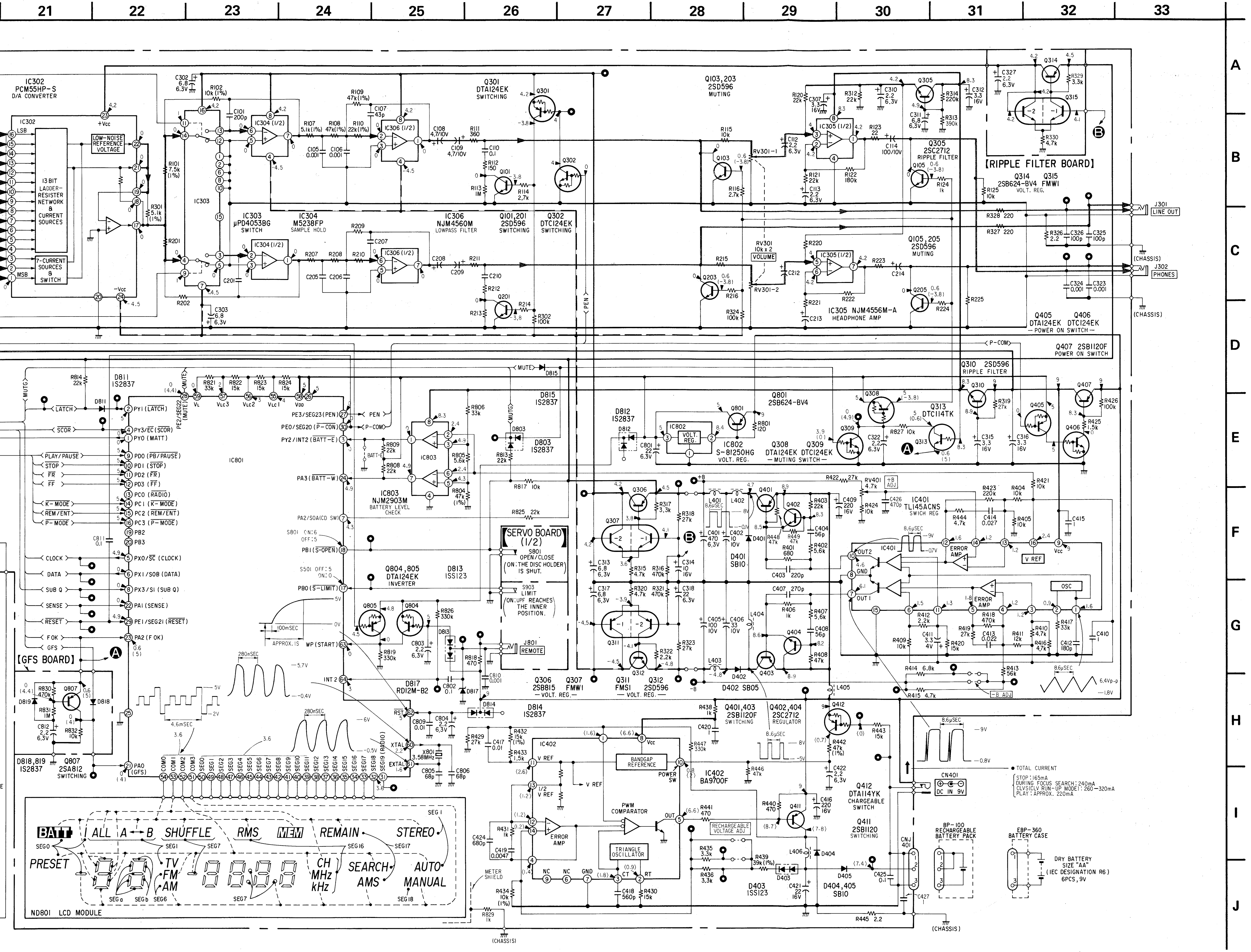
[MAIN BOARD]
IC301 SM5806S DIGITAL FILTER
INPUT INTERFACE CIRCUIT
SHIFT RESISTER (35STAGE X16bitX2)
MULTIPLIER/ ACCUMULATOR (16bitX12bit/24bit)
OVERFLOW LIMITER
OUTPUT CIRCUIT/ RESISTER
TIMING CONTROL CIRCUIT
ROM (35wordX24bit)
IC302 PCM55HP-S D/A CONVERTER
13 BIT LADDER-RESISTER NETWORK & CURRENT SOURCES
7-CURRENT SOURCES & SWITCH
LOW-NOISE REFERENCE VOLTAGE
IC303 μPD4053BG SWITCH
IC304 M5238FP SAMPLE HOLD
IC306 NJM4560M LOWPASS FILTER
Q101,201 2SD596 SWITCHING
Q301 DTA124EK SWITCHING
Q302 DTC124EK SWITCHING
IC602 HM6116LFP-3 16k BIT RAM
DECODER
SELECTOR
2048 x 8 (16384) RAM CELL
TEST
TIMING GENERATOR FROM X'TAL
RAM ADDRESS GENERATOR
X601 8.4672MHz
IC503 μPC358G2 NOTCH FILTER
IC503 μPC358G2 SPINDLE MOTOR DRIVE
D501 1S2837
Q504 DTC124EK MUTING
IC504 CXA1083M FOCUS/TRACKING COIL DRIVE
IC505 CXA1083M SLED/SPINDLE MOTOR DRIVE
D502-505 SB05
D506-509 SB05
FULL WAVE RECT
COMPARATOR
MUTING
THERMAL SHUTDOWN
PWM MODULATOR
LOGIC
DRIVER
SAWTOOTH WAVE
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL : APPROX. 8Ω
KSS-160A OPTICAL PICK-UP BLOCK (1/2)
M901 SLED
M902 SPINDLE
S901 (STOP)
S902 (PLAY/PAUSE)
(KEYBOARD SWITCH)
S803 PLAY
S805 KEY
S804 REMAIN (ENTER)
S806 (FF)
S807 (FR)
S802 HOLD OFF ON
IC801 CXP5806-003Q SYSTEM CONTROL
IC803 NJM2903M BATTERY LEVEL CHECK
Q804,805 DTA124EK INVERTER
D813 1SS123
D815 1S2837
D812 1S2837
D803 1S2837
D811 1S2837
D817 RD12M-B2
D814 1S2837
X801 3.58MHz
[SERVO BOARD] (1/2)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.
S903 LIMIT (ON: UPF REACHES THE INNER POSITION.
J801 REMOTE
[GFS BOARD]
Q807 2SA812 SWITCHING
D818,819 1S2837
ND801 LCD MODULE
BATT ALL A-B SHUFFLE RMS MEM REMAIN STEREO
PRESET TV FM AM CH MHz kHz SEARCH AMS AUTO MANUAL
Q306 2SB815 Q307 FMW1 - VOLT. REG. -
Q311 FMS1 Q312 2SD596 - VOLT. REG. -
IC402
BANDGAP REFERENCE
ERROR AMP
PWM COMPARATOR
TRIANGLE OSCILLATOR
METER SHIELD
(CHASSIS)


21
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31
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33
A
B
C
D
E
F
G
H
I
J
IC302 PCM55HP-S D/A CONVERTER
13 BIT LADDER-RESISTER NETWORK & CURRENT SOURCES
7-CURRENT SOURCES & SWITCH
LOW-NOISE REFERENCE VOLTAGE
IC303 μPD4053BG SWITCH
IC304 M5238FP SAMPLE HOLD
IC306 NJM4560M LOWPASS FILTER
Q101,201 2SD596 SWITCHING
Q302 DTC124EK SWITCHING
Q301 DTA124EK SWITCHING
Q103,203 2SD596 MUTING
RV301 10k x 2 VOLUME
IC305 NJM4556M-A HEADPHONE AMP
Q305 2SC2712 RIPPLE FILTER
Q105,205 2SD596 MUTING
[RIPPLE FILTER BOARD]
Q314 Q315 2SB624-BV4 FMW1 VOLT. REG.
J301 LINE OUT
J302 PHONES
(CHASSIS)
Q405 DTA124EK
Q406 DTC124EK
—POWER ON SWITCH—
Q407 2SB1120F POWER ON SWITCH
Q310 2SD596 RIPPLE FILTER
Q313 DTC114TK
Q801 2SB624-BV4
IC802 S-81250HG VOLT. REG.
Q308 DTA124EK
Q309 DTC124EK
—MUTING SWITCH—
D811 1S2837
D812 1S2837
D815 1S2837
D803 1S2837
IC801
IC803 NJM2903M BATTERY LEVEL CHECK
Q804,805 DTA114EK INVERTER
D813 1SS123
[SERVO BOARD] (1/2)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.)
S903 LIMIT (ON: UPF REACHES THE INNER POSITION.)
J801 REMOTE
D817 RD12M-B2
D814 1S2837
X801 3.58MHz
Q306 2SB815
Q307 FMW1
—VOLT. REG.—
Q311 FMS1
Q312 2SD596
D401 SB10
D402 SB05
IC401 TL1451ACNS SWICH REG
ERROR AMP
OSC
V REF
+B ADJ
-B ADJ
Q401,403 2SB1120F SWITCHING
Q402,404 2SC2712 REGULATOR
IC402 BA9700F
BANDGAP REFERENCE
POWER SW
PWM COMPARATOR
TRIANGLE OSCILLATOR
RECHARGEABLE VOLTAGE ADJ
D403 1SS123
D404,405 SB10
Q412 DTA114YK CHARGEABLE SWITCH
Q411 2SB1120 SWITCHING
CN401 DC IN 9V
TOTAL CURRENT
STOP: 165mA
DURING FOCUS SEARCH: 240mA
CLVS(CLV RUN-UP MODE): 260-320mA
PLAY: APPROX. 220mA
BP-100 RECHARGEABLE BATTERY PACK
EBP-360 BATTERY CASE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
[GFS BOARD]
Q807 2SA812 SWITCHING
D818,819 1S2837
METER SHIELD
ND801 LCD MODULE
BATT
ALL A↔B SHUFFLE RMS MEM REMAIN STEREO
PRESET
TV FM AM
CH MHz kHz
SEARCH AMS
AUTO MANUAL
LATCH
SCOR
PLAY/PAUSE
STOP
FF
K-MODE
REM/ENT
P-MODE
CLOCK
DATA
SUB Q
SENSE
RESET
FOK
GFS
MUTE
PEN
P-COM
100mSEC
APPROX. 1S
280nSEC
4.6mSEC
8.6μSEC
6.4Vp-p

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- ▬▶▬ : signal path.
- ▬▬ : B+ bus.
- ▬ ▬ ▬ : B– bus.
- Voltages, waveform and total current are measured with top panel closed.
- Power voltage is DC 9 V and fed with regulated dc power supply from DC in 9 V (external power voltage) jack.
  Voltages are DC with respect to ground in service mode.
  Voltage variations may be noted dur to normal production tolerances.
  no mark : stop mode
  (   ): play mode
  <   >: Stop condition on normal operation when connecting a 680 Ω resistor between pin ② and pin ③ of CNJ401 and storting the base of Q412 to the ground.
- Waveforms are taken to ground in service mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Total current is measured in service mode.
- Switch

Ref. No.	Switch	Position
S801	OPEN/CLOSE	ON
S802	HOLD	OFF
S803	PLAY-MODE	OFF
S804	REMAIN/ENTER	OFF
S805	KEY-MODE	OFF
S806	▶▶❙ (FF)	OFF
S807	❙◀◀ (FR)	OFF
S901	■ (STOP)	OFF
S902	▶ (PLAY/PAUSE)	OFF
S903	LIMIT	OFF

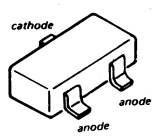
See page 6 – 8 for setup of service mode.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

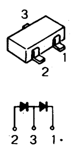
Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- **Semiconductor Lead Layouts**

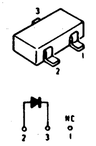
1S2837


cathode
anode
anode

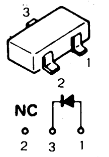
1SS123



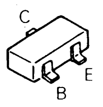
RD12M-B2



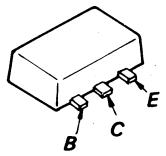
SB10-05PCP
SB05-05CP



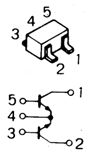
2SA812
2SB1120-F
2SB624-BV4
2SB815
2SC2712
2SD596
DTA114YK
DTA124EK
DTC114TK
DTC124EK



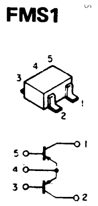
2SB798



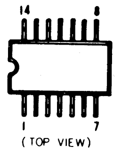
FMG4
FMW1


5
4
3
1
2
5
4
3
1
2

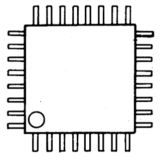
FMS1


5
4
3
1
2
5
4
3
1
2

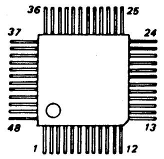
BA9700F


14
8
1
7
(TOP VIEW)

CXA1081Q



CXA1082AQ


36
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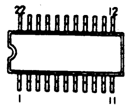
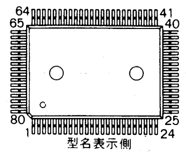
37
24
48
13
1
12

CXA1083M



CXD1125Q


64
41
65
40
80
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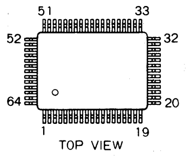
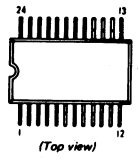
1
24
型名表示側

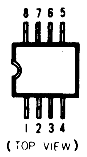
CXP5806-003Q


51
33
52
32
64
20
1
19
TOP VIEW

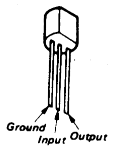
HM6116LFP-3
PCM55HP-S


24
13
1
12
(Top view)

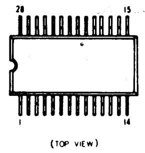
M5238FP
NJM2903M
NJM4556M-A
NJM4560M
μPC358G2


8 7 6 5
1 2 3 4
(TOP VIEW)

S-81250HG


Ground
Input
Output

SM5806S


28
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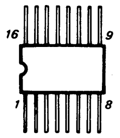
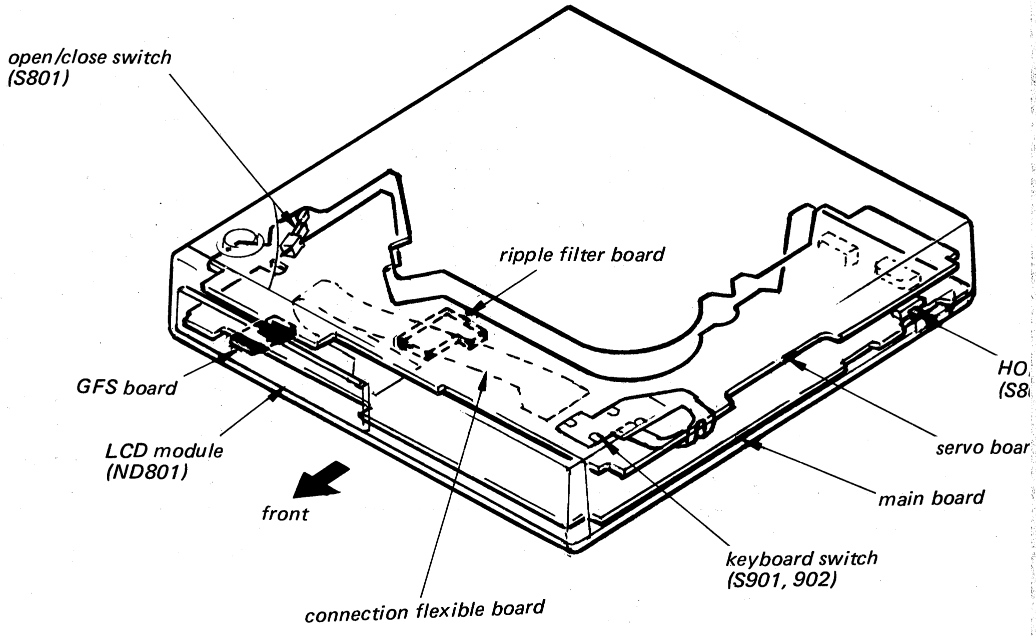
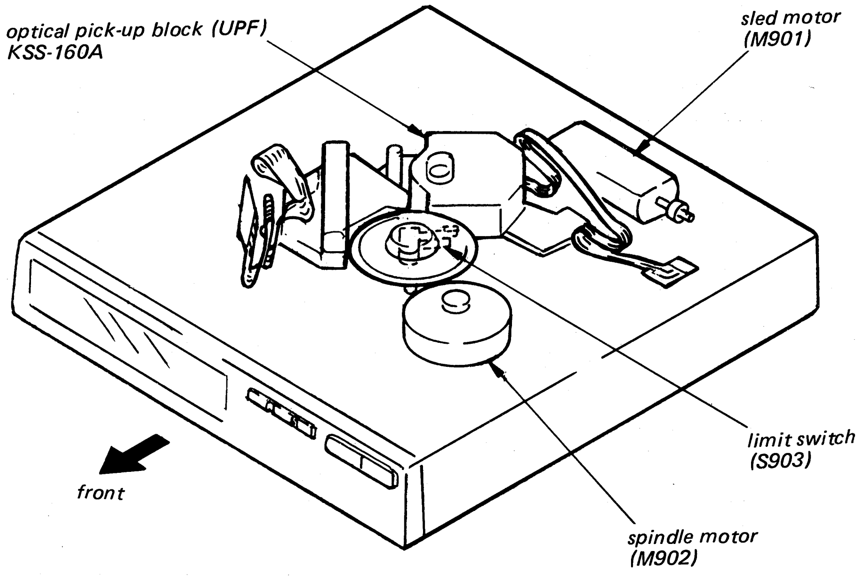
(TOP VIEW)

TL1451ACNS
μPD4053BG

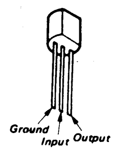


- **PC BOARDS/SWITCH/MOTOR LAYOUTS**

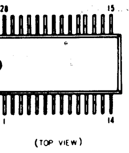

open/close switch
(S801)
ripple filter board
GFS board
HO
(S8
LCD module
(ND801)
servo boar
front
main board
keyboard switch
(S901, 902)
connection flexible board


optical pick-up block (UPF)
KSS-160A
sled motor
(M901)
limit switch
(S903)
front
spindle motor
(M902)

S-81250HG


Ground
Input
Output

SM5806S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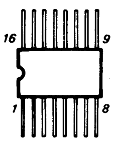
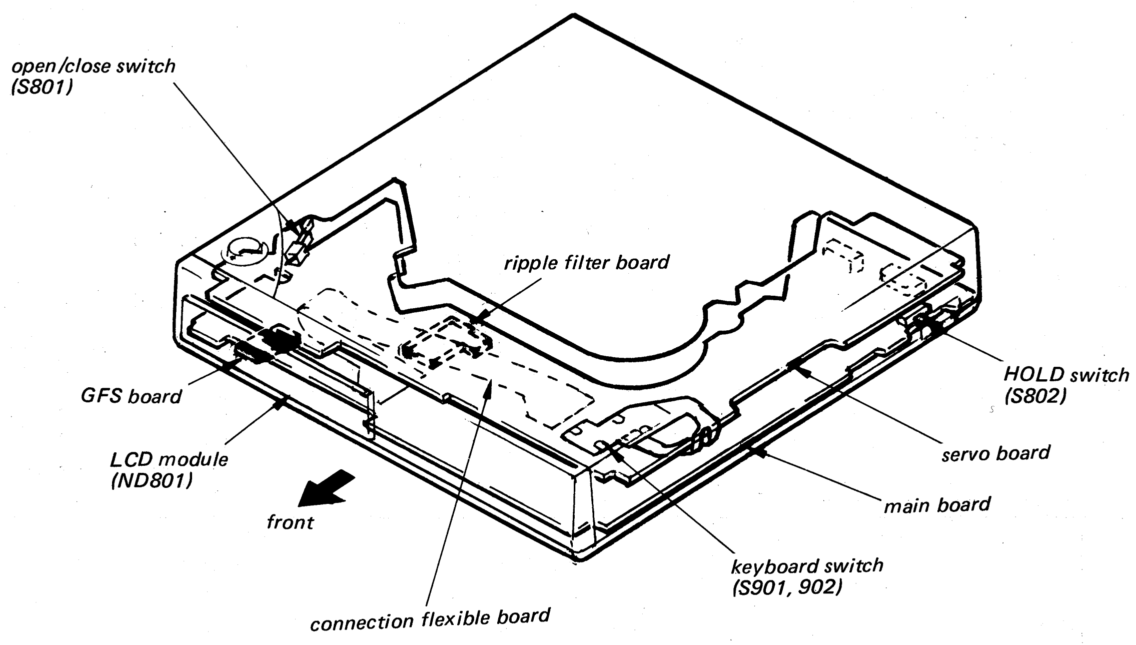
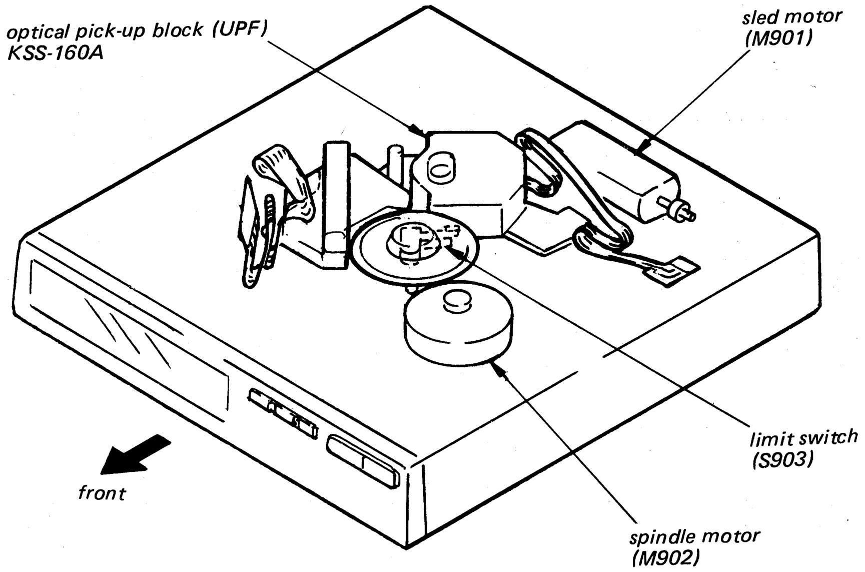
(TOP VIEW)

TL1451ACNS
uPD4053BG



- **PC BOARDS/SWITCH/MOTOR LAYOUTS**


open/close switch
(S801)
ripple filter board
HOLD switch
(S802)
GFS board
servo board
LCD module
(ND801)
main board
front
keyboard switch
(S901, 902)
connection flexible board


optical pick-up block (UPF)
KSS-160A
sled motor
(M901)
limit switch
(S903)
front
spindle motor
(M902)

SECTION 5

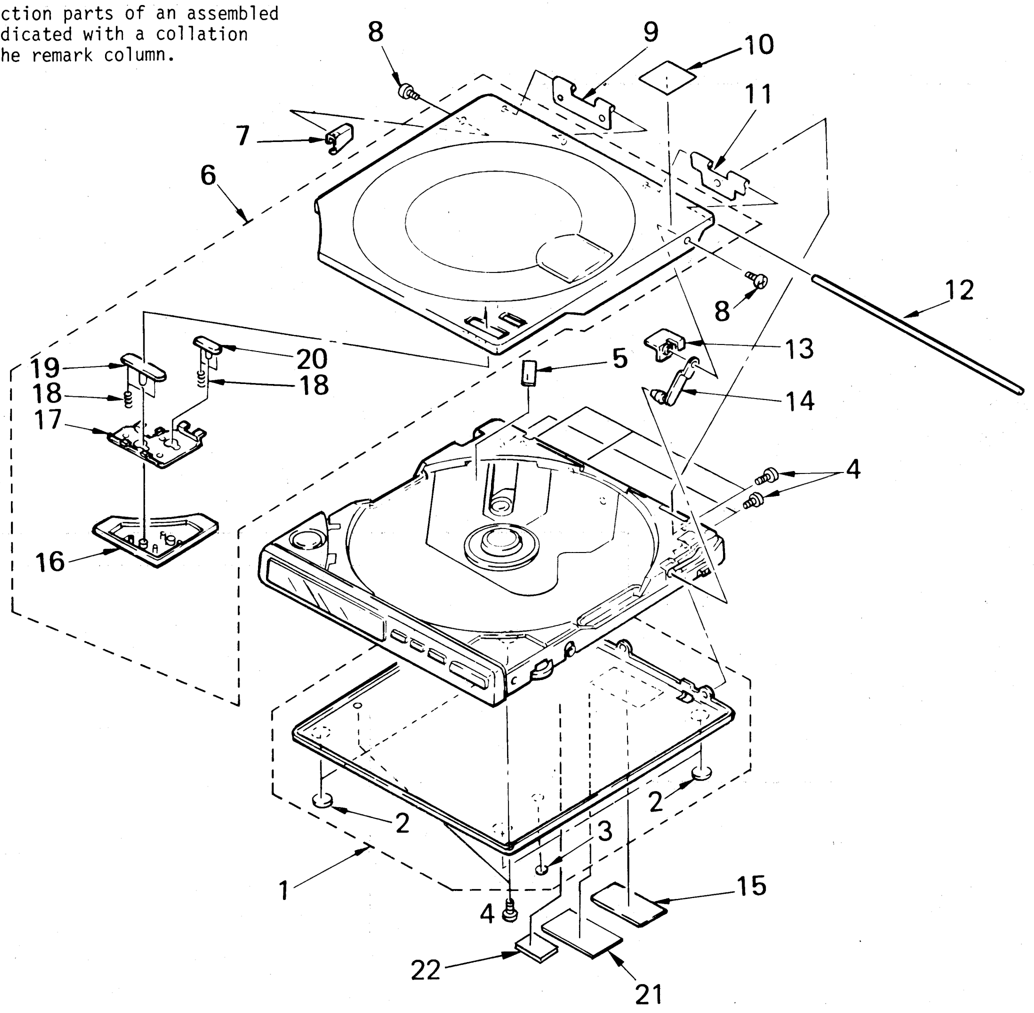
EXPLODED VIEWS AND PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(1)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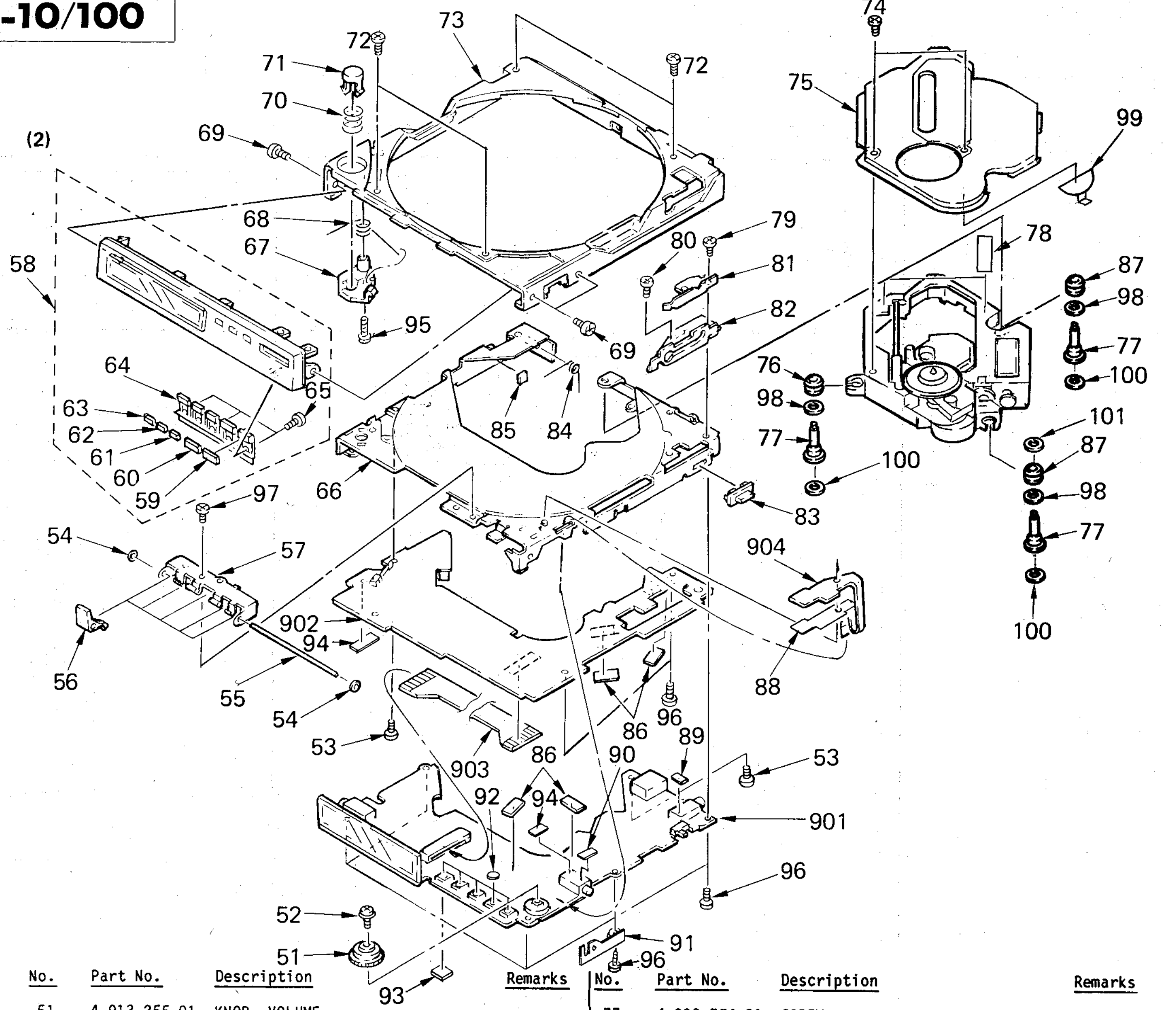
No.	Part No.	Description	Remarks
1	X-4917-708-1	(BLACK)...PANEL ASSY, BOTTOM	
	X-4917-709-1	(WHITE)...PANEL ASSY, BOTTOM	
2	4-912-641-01	FOOT, RUBBER	
3	3-527-126-00	MARK, BATTERY CASE	
4	3-703-816-42	(BLACK)...SCREW (M1.4X2.5), SPECIAL HEAD	
	7-627-551-28	(WHITE)...SCREW (M1.4X2.5), SPECIAL HEAD	
5	4-908-711-01	LABEL, CAUTION, LENS	
6	X-4917-712-1	(WHITE)...PANEL ASSY, UPPER	
	X-4917-713-1	(BLACK)...PANEL ASSY, UPPER	
7	4-917-742-01	RETAINER, SPRING, SWITCHING	
8	3-703-816-01	(WHITE)...SCREW (M1.4X2.0), SPECIAL HEAD	
	3-703-816-02	(BLACK)...SCREW (M1.4X2.0), SPECIAL HEAD	
9	4-917-739-01	(BLACK)...PLATE (LEFT), FULCRUM	
	4-917-739-11	(WHITE)...PLATE (LEFT), FULCRUM	
10	3-703-710-01	STICKER, SONY SYMBOL (12)	
11	4-917-740-01	(BLACK)...PLATE (RIGHT), FULCRUM	
	4-917-740-11	(WHITE)...PLATE (RIGHT), FULCRUM	
12	4-907-031-11	BAR, FULCRUM	
13	X-4917-704-1	BRACKET ASSY, SWITCHING PLATE	
14	X-4907-024-1	PLATE ASSY, SWITCHING	
15	4-917-788-01	(US,Canadian)....LABEL, MODEL NUMBER (U)	
	4-917-795-01	(AEP,UK,E:BLACK,AUS) ...LABEL, MODEL NUMBER	
	4-917-795-11	(AEP,UK,E:WHITE)...LABEL, MODEL NUMBER	
16	4-917-713-01	COVER, BUTTON	
17	4-917-712-01	PLATE (B), FIXED	
18	4-917-711-01	SPRING, COMPRESSION	
19	4-917-709-01	BUTTON, PLAY	
20	4-917-710-01	(BLACK)...BUTTON, STOP	
	4-917-710-11	(WHITE)...BUTTON, STOP	
21	*4-885-838-01	(AEP,UK)...LABEL, CLASS 1	
22	*4-917-798-01	(AEP)...LABEL, SP	



No.	Part No.	Description	Remarks
51	4-913-255-01	KNOB, VOLUME	
52	3-703-502-31	SCREW	
53	3-335-797-21	SCREW (M1.4X3), TOOTHED LOCK	
54	3-318-236-01	WASHER, POLY, SLIT	
55	*4-917-748-01	SHAFT, LEVER	
56	*4-917-746-01	LEVER	
57	*4-917-747-01	SUPPORT, LEVER	
58	X-4917-702-1	(BLACK)...PANEL ASSY, FRONT	
	X-4917-710-1	(WHITE)...PANEL ASSY, FRONT	
59	4-917-730-01	BUTTON, FF	
60	4-917-731-01	BUTTON, FR	
61	4-917-732-11	BUTTON, MODE (KEY-MODE)	
62	4-917-732-01	BUTTON, MODE (PLAY-MODE)	
63	4-917-732-21	BUTTON, MODE (REMAIN)	
64	4-917-735-01	SPRING	
65	3-703-816-61	SCREW (M1.4X2.2), SPECIAL HEAD	
66	X-4917-711-1	CHASSIS ASSY	
67	4-917-728-01	LEVER, LOCK	
68	4-917-729-01	SPRING	
69	3-703-816-71	(WHITE)...SCREW (M1.4X3.0), SPECIAL HEAD	
	3-703-816-72	(BLACK)...SCREW (M1.4X3.0), SPECIAL HEAD	
70	4-917-727-01	SPRING, COMPRESSION	
71	4-917-726-01	(BLACK)...BUTTON, OPEN	
	4-917-726-11	(WHITE)...BUTTON, OPEN	
72	3-703-816-21	(WHITE)...SCREW (M1.4X5.0), SPECIAL HEAD	
	3-703-816-22	(BLACK)...SCREW (M1.4X5.0), SPECIAL HEAD	
73	X-4917-701-1	(BLACK)...CABINET ASSY	
	X-4917-706-1	(WHITE)...CABINET ASSY	
74	3-895-823-11	SCREW (B1.4X3), TAPPING	
75	4-917-741-01	COVER, MD	
76	4-908-755-01	INSULATOR (2001)	
77	4-908-754-21	SCREW	
78	3-842-935-00	CUSHION	
79	3-703-816-01	SCREW (M1.4X2.0), SPECIAL HEAD	
80	3-703-816-32	SCREW (M1.4X1.6), SPECIAL HEAD	
81	*4-917-753-01	SPRING	
82	4-917-751-01	PLATE, SLIDE, SWITCHING PLATE	
83	4-917-701-01	KNOB, POSITION	
84	4-917-745-01	SPRING	
85	*4-917-792-01	SPACER	
86	3-831-441-11	CUSHION (B)	
87	4-917-791-01	INSULATOR	
88	*4-917-783-01	SPACER	
89	*3-329-460-01	SPACER	
90	9-911-863-XX	SPACER	
91	*4-917-775-01	REINFORCEMENT, JACK	
92	*4-917-784-11	SPACER (S)	
93	9-911-841-XX	CUSHION, CASSETTE LID	
94	*4-917-777-01	SPACER	
95	4-917-778-01	SCREW (1.4X3), TAPPING	
96	7-627-551-28	SCREW (M1.4X2.5), SPECIAL HEAD	
97	7-627-551-18	SCREW, PRECISION +P 1.4X2	
98	3-701-441-11	WASHER	
99	*4-917-790-01	SHEET (B), INSULATING	
100	*4-917-785-01	SPACER	
101	*4-917-786-01	SPACER	
901	A-3015-462-A	PC BOARD ASSY, MAIN	
902	A-3015-461-A	PC BOARD ASSY, SERVO	
903	1-620-609-11	PC BOARD, CONNECTION FLEXIBLE	
904	1-570-872-11	SWITCH, KEY BOARD (including S901,902)	
905	*1-621-347-11	PC BOARD, GFS	
906	*1-621-510-11	PC BOARD, RIPPLE FILTER	

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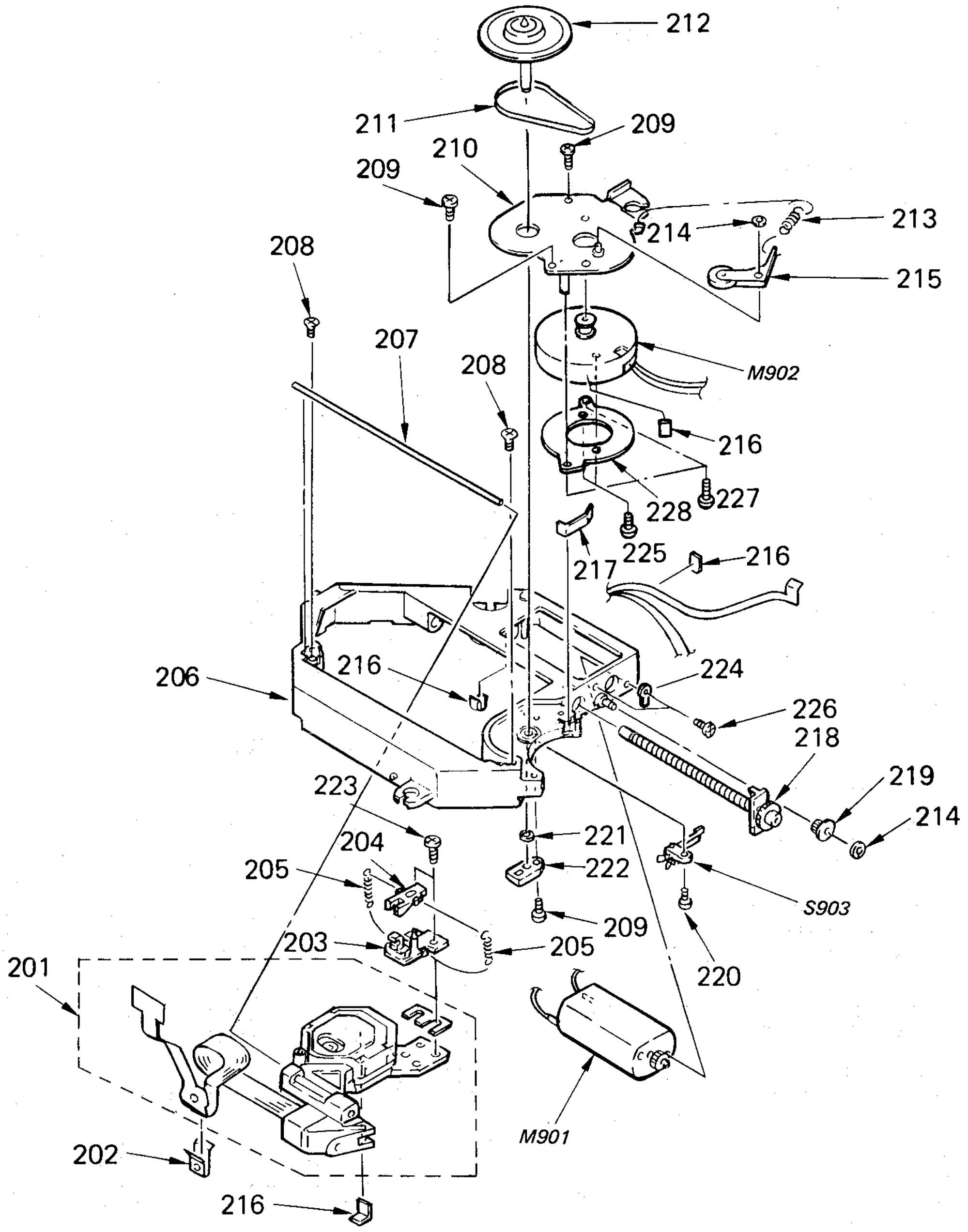
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No.	Part No.	Description	Remarks
201 ⚠	X-4917-716-1	PICKUP, OPTICS KSS-160A	
202	4-917-622-01	RETAINER, FLEXIBLE	
203	4-917-628-01	RACK (A)	
204	4-917-610-01	RACK (B)	
205	4-917-623-01	SPRING, TENSION	
206	X-4917-603-1	CHASSIS ASSY, MD	
207	4-917-611-01	SHAFT (A)	
208	4-917-618-01	SCREW (B2X8), TAPPING, (+)(K)	
209	4-912-432-01	SCREW (B1.4X5), TAPPING	
210	*X-4917-604-1	BRACKET ASSY, MOTOR	
211	4-917-605-01	BELT, FLAT	
212	X-4917-717-1	TURNTABLE ASSY	
213	3-305-523-00	SPRING, TENSION	
214	3-315-384-11	WASHER, STOPPER	
215	X-4917-601-1	LEVER ASSY, TENSION	
216	3-831-441-XX	CUSHION, STOPPER	
217	4-917-609-01	SPRING, LEAF	
218	X-4917-602-1	SCREW ASSY, FEED	
219	4-917-607-01	GEAR (B)	
220	4-908-792-51	SCREW (B2X5), TAPPING, P1	
221	3-329-410-01	WASHER, STOPPER	
222	4-917-604-01	RETAINER, THRUST	
223	7-627-552-38	SCREW, PRECISION +P 1.7X3	
224	7-623-505-01	LUG, 2	
225	7-627-552-18	SCREW, PRECISION +P 1.7X1.6	
226	7-627-853-47	PRECISION SCREW +P 2X4 TYPE 3	
227	7-627-850-18	SCREW, PRECISION +P 1.4X2.5	
228	*4-917-639-01	BRACKET (B), MOTOR	
M901	X-4917-714-1	MOTOR ASSY, FEED	
M902	X-4917-715-1	MOTOR ASSY, CLV	
S903	1-553-198-00	SWITCH, LEAF (LIMIT)	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 6
ELECTRICAL PARTS LIST

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC,
UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	A-3015-462-A	PC BOARD ASSY, MAIN			
902	A-3015-461-A	PC BOARD ASSY, SERVO			
903	1-620-609-11	PC BOARD, CONNECTION FLEXIBLE			
904	1-570-872-11	SWITCH, KEY BOARD (including S901,902)			
905	*1-621-347-11	PC BOARD, GFS			
906	*1-621-510-11	PC BOARD, RIPPLE FILTER			
C101	1-163-188-00	CERAMIC CHIP	200PF	5%	50V
C105	1-163-335-11	CERAMIC CHIP	0.001MF	5%	50V
C106	1-163-335-11	CERAMIC CHIP	0.001MF	5%	50V
C107	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C108	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C109	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C110	1-162-623-91	CERAMIC CHIP	0.1MF	10%	25V
C112	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C113	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C114	1-124-443-00	ELECT	100MF	20%	10V
C201	1-163-188-00	CERAMIC CHIP	200PF	5%	50V
C205	1-163-335-11	CERAMIC CHIP	0.001MF	5%	50V
C206	1-163-335-11	CERAMIC CHIP	0.001MF	5%	50V
C207	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C208	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C209	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C210	1-162-623-91	CERAMIC CHIP	0.1MF	10%	25V
C212	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C213	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C214	1-124-443-00	ELECT	100MF	20%	10V
C301	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C302	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C303	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C307	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C310	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C311	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C312	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C313	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C314	1-131-371-00	TANTALUM	10MF	10%	16V
C315	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C316	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C317	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C318	1-135-144-91	TANTAL. CHIP	22MF	20%	6.3V
C322	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C323	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C324	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C325	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C326	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C327	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C401	1-126-114-11	ELECT	470MF	20%	6.3V
C402	1-131-377-00	TANTALUM	10MF	10%	10V
C403	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C404	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C405	1-124-443-00	ELECT	100MF	20%	10V
C406	1-131-380-00	TANTALUM	33MF	10%	10V
C407	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C408	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C409	1-126-113-11	ELECT	220MF	20%	16V
C410	1-162-638-11	CERAMIC CHIP	1MF		16V
C411	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V
C412	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C413	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C414	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C415	1-162-638-11	CERAMIC CHIP	1MF		16V
C416	1-126-113-11	ELECT	220MF	20%	16V
C417	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C418	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C419	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C420	1-162-638-11	CERAMIC CHIP	1MF		16V
C421	1-131-373-00	TANTALUM	22MF	10%	16V
C422	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C424	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C425	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C426	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C427	1-162-638-11	CERAMIC CHIP	1MF		16V
C501	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C502	1-163-074-00	CERAMIC CHIP	0.033MF	10%	25V
C503	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C504	1-162-623-91	CERAMIC CHIP	0.1MF	10%	25V
C506	1-135-104-00	TANTAL. CHIP	10MF	20%	4V
C507	1-135-143-91	TANTAL. CHIP	33MF	20%	4V
C508	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C509	1-135-144-91	TANTAL. CHIP	22MF	20%	6.3V
C510	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C512	1-135-143-91	TANTAL. CHIP	33MF	20%	4V
C513	1-163-074-00	CERAMIC CHIP	0.033MF	10%	25V
C514	1-135-143-91	TANTAL. CHIP	33MF	20%	4V
C517	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C518	1-163-074-00	CERAMIC CHIP	0.033MF	10%	25V
C519	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C520	1-135-096-21	TANTAL. CHIP	4.7MF	10%	10V
C521	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C522	1-135-144-91	TANTAL. CHIP	22MF	20%	6.3V
C523	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C524	1-135-131-11	TANTAL. CHIP	22MF	20%	4V

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
C525	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C526	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C527	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C529	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C531	1-135-131-11	TANTAL. CHIP 22MF	20%	4V
C532	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C533	1-163-059-00	CERAMIC CHIP 0.01MF	10%	50V
C534	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C535	1-135-144-91	TANTAL. CHIP 22MF	20%	6.3V
C536	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C538	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C539	1-135-100-21	TANTAL. CHIP 6.8MF	20%	6.3V
C540	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C541	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C542	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C543	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C544	1-163-017-00	CERAMIC CHIP 0.0047MF	5%	50V
C545	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C546	1-163-021-00	CERAMIC CHIP 0.01MF	5%	50V
C547	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C548	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C549	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C550	1-163-018-00	CERAMIC CHIP 0.0056MF	10%	50V
C551	1-131-374-00	TANTALUM 33MF	10%	16V
C552	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C553	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C554	1-124-779-00	ELECT 10MF	20%	16V
C555	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C556	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C557	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C560	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C561	1-131-374-00	TANTALUM 33MF	10%	16V
C562	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C563	1-131-347-00	TANTALUM 1MF	10%	25V
C564	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V
C565	1-102-074-00	CERAMIC 0.001MF	5%	50V
C601	1-162-638-11	CERAMIC CHIP 1MF		16V
C602	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C603	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C604	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C606	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C607	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C608	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C801	1-135-144-91	TANTAL. CHIP 22MF	20%	6.3V
C802	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C803	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V
C804	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V
C805	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C806	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C809	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C810	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C811	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C812	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V
CN103	1-563-552-11	SOCKET, CONNECTOR 4P		
CN401	1-562-961-11	JACK (DC IN 9V)		
CN501	1-563-546-11	HOUSING, CONNECTOR 12P		
CN502	1-563-552-21	SOCKET, CONNECTOR 4P		
CNJ401	1-535-608-11	TERMINAL, BATTERY		

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
D401	8-719-938-78	DIODE SB10-05PCP			
D402	8-719-938-75	DIODE SB05-05CP			
D403	8-719-101-23	DIODE 1SS123			
D404	8-719-938-78	DIODE SB10-05PCP			
D405	8-719-938-78	DIODE SB10-05PCP			
D501	8-719-100-05	DIODE 1S2837			
D502	8-719-938-75	DIODE SB05-05CP			
D503	8-719-938-75	DIODE SB05-05CP			
D504	8-719-938-75	DIODE SB05-05CP			
D505	8-719-938-75	DIODE SB05-05CP			
D506	8-719-938-75	DIODE SB05-05CP			
D507	8-719-938-75	DIODE SB05-05CP			
D508	8-719-938-75	DIODE SB05-05CP			
D509	8-719-938-75	DIODE SB05-05CP			
D510	8-719-938-75	DIODE SB05-05CP			
D511	8-719-100-03	DIODE 1S2835			
D803	8-719-100-05	DIODE 1S2837			
D811	8-719-100-05	DIODE 1S2837			
D812	8-719-100-05	DIODE 1S2837			
D813	8-719-101-23	DIODE 1SS123			
D814	8-719-100-05	DIODE 1S2837			
D815	8-719-100-05	DIODE 1S2837			
D817	8-719-106-71	DIODE RD12M-B2			
D818	8-719-100-05	DIODE 1S2837			
D819	8-719-100-05	DIODE 1S2837			
IC301	8-759-939-33	IC SM5806S			
IC302	8-759-924-49	IC PCM55HP-S			
IC303	8-759-103-25	IC UPD4053BG			
IC304	8-759-603-04	IC M5238FP			
IC305	8-759-700-45	IC NJM4556M-A			
IC306	8-759-745-64	IC NJM4560M			
IC401	8-759-908-95	IC TL1451ACNS			
IC402	8-759-939-07	IC BA9700F			
IC501	8-759-937-87	IC CXA1081Q			
IC502	8-752-031-65	IC CXA1082AQ			
IC503	8-759-100-94	IC UPC358G2			
IC504	8-759-924-58	IC CXA1083M			
IC505	8-759-924-58	IC CXA1083M			
IC601	8-752-322-04	IC CXD1125Q			
IC602	8-752-302-72	IC HM6116LFP-3			
IC801	8-752-801-56	IC CXP5086-003Q			
IC802	8-759-912-55	IC S-81250HG			
IC803	8-759-700-07	IC NJM2903M			
J301	1-563-280-21	JACK (LINE OUT)			
J302	1-563-280-11	JACK (PHONES)			
J801	1-563-280-31	JACK (REMOTE)			
JR301	1-216-295-00	METAL CHIP	0	5%	1/10W
JR401	1-216-295-00	METAL CHIP	0	5%	1/10W
JR502	1-216-295-00	METAL CHIP	0	5%	1/10W
JR503	1-216-295-00	METAL CHIP	0	5%	1/10W
JR801	1-216-295-00	METAL CHIP	0	5%	1/10W
JR802	1-216-295-00	METAL CHIP	0	5%	1/10W
JR803	1-216-295-00	METAL CHIP	0	5%	1/10W
L401	1-459-639-11	COIL (WITH CORE)			
L402	1-459-690-11	COIL (WITH CORE)			
L403	1-459-639-11	COIL (WITH CORE)			
L404	1-459-688-11	COIL (WITH CORE)			
L405	1-459-639-11	COIL (WITH CORE)			
L406	1-459-690-11	COIL (WITH CORE)			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
L501	1-410-393-11	INDUCTOR CHIP 100UH			
L502	1-410-526-11	MICRO INDUCTOR 10UH			
L504	1-459-639-11	COIL (WITH CORE)			
M901	X-4917-714-1	MOTOR ASSY, FEED			
M902	X-4917-715-1	MOTOR ASSY, CLV			
ND801	1-807-687-11	LCD MODULE			
Q101	8-729-159-64	TRANSISTOR 2SD596			
Q103	8-729-159-64	TRANSISTOR 2SD596			
Q105	8-729-159-64	TRANSISTOR 2SD596			
Q201	8-729-159-64	TRANSISTOR 2SD596			
Q203	8-729-159-64	TRANSISTOR 2SD596			
Q205	8-729-159-64	TRANSISTOR 2SD596			
Q301	8-729-901-05	TRANSISTOR DTA124EK			
Q302	8-729-901-00	TRANSISTOR DTC124EK			
Q305	8-729-271-23	TRANSISTOR 2SC2712			
Q306	8-729-800-68	TRANSISTOR 2SB815			
Q307	8-729-903-10	TRANSISTOR FMW1			
Q308	8-729-901-05	TRANSISTOR DTA124EK			
Q309	8-729-901-00	TRANSISTOR DTC124EK			
Q310	8-729-159-64	TRANSISTOR 2SD596			
Q311	8-729-902-96	TRANSISTOR FMS1			
Q312	8-729-159-64	TRANSISTOR 2SD596			
Q313	8-729-902-99	TRANSISTOR DTC114TK			
Q314	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q315	8-729-903-10	TRANSISTOR FMW1			
Q401	8-729-806-75	TRANSISTOR 2SB1120-F			
Q402	8-729-271-23	TRANSISTOR 2SC2712			
Q403	8-729-806-75	TRANSISTOR 2SB1120-F			
Q404	8-729-271-23	TRANSISTOR 2SC2712			
Q405	8-729-901-05	TRANSISTOR DTA124EK			
Q406	8-729-901-00	TRANSISTOR DTC124EK			
Q407	8-729-806-75	TRANSISTOR 2SB1120-F			
Q411	8-729-806-75	TRANSISTOR 2SB1120-F			
Q412	8-729-901-46	TRANSISTOR DTA114YK			
Q501	8-729-101-07	TRANSISTOR 2SB798			
Q504	8-729-901-05	TRANSISTOR DTC124EK			
Q801	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q804	8-729-901-05	TRANSISTOR DTA124EK			
Q805	8-729-901-05	TRANSISTOR DTA124EK			
Q807	8-729-100-76	TRANSISTOR 2SA812			
R101	1-216-330-11	METAL CHIP	7.5K	1%	1/10W
R102	1-216-324-11	METAL CHIP	10K	1%	1/10W
R107	1-216-329-11	METAL CHIP	5.1K	1%	1/10W
R108	1-216-336-11	METAL CHIP	47K	1%	1/10W
R109	1-216-336-11	METAL CHIP	47K	1%	1/10W
R110	1-216-334-11	METAL CHIP	22K	1%	1/10W
R111	1-216-038-00	METAL CHIP	360	5%	1/10W
R112	1-216-029-00	METAL CHIP	150	5%	1/10W
R113	1-216-121-00	METAL CHIP	1M	5%	1/10W
R114	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R115	1-216-073-00	METAL CHIP	10K	5%	1/10W
R116	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R120	1-216-081-00	METAL CHIP	22K	5%	1/10W
R121	1-216-081-00	METAL CHIP	22K	5%	1/10W
R122	1-216-103-00	METAL CHIP	180K	5%	1/10W
R123	1-216-009-00	METAL CHIP	22	5%	1/10W
R124	1-216-049-00	METAL CHIP	1K	5%	1/10W
R125	1-216-073-00	METAL CHIP	10K	5%	1/10W
R201	1-216-330-11	METAL CHIP	7.5K	1%	1/10W
R202	1-216-324-11	METAL CHIP	10K	1%	1/10W
R207	1-216-329-11	METAL CHIP	5.1K	1%	1/10W
R208	1-216-336-11	METAL CHIP	47K	1%	1/10W
R209	1-216-336-11	METAL CHIP	47K	1%	1/10W
R210	1-216-334-11	METAL CHIP	22K	1%	1/10W
R211	1-216-038-00	METAL CHIP	360	5%	1/10W
R212	1-216-029-00	METAL CHIP	150	5%	1/10W
R213	1-216-121-00	METAL CHIP	1M	5%	1/10W
R214	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R215	1-216-073-00	METAL CHIP	10K	5%	1/10W
R216	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R220	1-216-081-00	METAL CHIP	22K	5%	1/10W
R221	1-216-081-00	METAL CHIP	22K	5%	1/10W
R222	1-216-103-00	METAL CHIP	180K	5%	1/10W
R223	1-216-009-00	METAL CHIP	22	5%	1/10W
R224	1-216-049-00	METAL CHIP	1K	5%	1/10W
R225	1-216-073-00	METAL CHIP	10K	5%	1/10W
R301	1-216-329-11	METAL CHIP	5.1K	1%	1/10W
R302	1-216-097-00	METAL CHIP	100K	5%	1/10W
R312	1-216-081-00	METAL CHIP	22K	5%	1/10W
R313	1-216-111-00	METAL CHIP	390K	5%	1/10W
R314	1-216-105-00	METAL CHIP	220K	5%	1/10W
R315	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R316	1-216-113-00	METAL CHIP	470K	5%	1/10W
R317	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R318	1-216-083-00	METAL CHIP	27K	5%	1/10W
R319	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R320	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R321	1-216-113-00	METAL CHIP	470K	5%	1/10W
R322	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R323	1-216-083-00	METAL CHIP	27K	5%	1/10W
R324	1-216-097-00	METAL CHIP	100K	5%	1/10W
R326	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R327	1-216-033-00	METAL CHIP	220	5%	1/10W
R328	1-216-033-00	METAL CHIP	220	5%	1/10W
R329	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R330	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R401	1-216-045-00	METAL CHIP	680	5%	1/10W
R402	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R403	1-216-081-00	METAL CHIP	22K	5%	1/10W
R404	1-216-073-00	METAL CHIP	10K	5%	1/10W
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-049-00	METAL CHIP	1K	5%	1/10W
R407	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R408	1-216-089-00	METAL CHIP	47K	5%	1/10W
R409	1-216-073-00	METAL CHIP	10K	5%	1/10W
R410	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R411	1-216-075-00	METAL CHIP	12K	5%	1/10W
R412	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R413	1-216-091-00	METAL CHIP	56K	5%	1/10W
R414	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R415	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R416	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R417	1-216-085-00	METAL CHIP	33K	5%	1/10W
R418	1-216-113-00	METAL CHIP	470K	5%	1/10W
R419	1-216-083-00	METAL CHIP	27K	5%	1/10W
R420	1-216-077-00	METAL CHIP	15K	5%	1/10W
R421	1-216-073-00	METAL CHIP	10K	5%	1/10W
R422	1-216-083-00	METAL CHIP	27K	5%	1/10W
R423	1-216-105-00	METAL CHIP	220K	5%	1/10W
R424	1-216-073-00	METAL CHIP	10K	5%	1/10W
R425	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R426	1-216-097-00	METAL CHIP	100K	5%	1/10W
R429	1-216-083-00	METAL CHIP	27K	5%	1/10W
R430	1-216-077-00	METAL CHIP	15K	5%	1/10W
R431	1-216-049-00	METAL CHIP	1K	5%	1/10W
R432	1-216-333-11	METAL CHIP	15K	1%	1/10W
R433	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R434	1-216-324-11	METAL CHIP	10K	1%	1/10W
R435	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R436	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R438	1-216-049-00	METAL CHIP	1K	5%	1/10W
R439	1-216-748-11	METAL CHIP	39K	1%	1/10W
R440	1-216-041-00	METAL CHIP	470	5%	1/10W
R441	1-216-041-00	METAL CHIP	470	5%	1/10W
R442	1-216-336-11	METAL CHIP	47K	1%	1/10W
R443	1-216-077-00	METAL CHIP	15K	5%	1/10W
R444	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R445	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R446	1-249-437-11	CARBON	47K	5%	1/6W
R447	1-247-891-00	CARBON	330K	5%	1/6W
R448	1-216-089-00	METAL CHIP	47K	5%	1/10W
R449	1-216-089-00	METAL CHIP	47K	5%	1/10W
R501	1-216-024-00	METAL CHIP	91	5%	1/10W
R502	1-216-089-00	METAL CHIP	47K	5%	1/10W
R503	1-216-083-00	METAL CHIP	27K	5%	1/10W
R504	1-216-085-00	METAL CHIP	33K	5%	1/10W
R505	1-216-198-00	METAL CHIP	1K	5%	1/8W
R506	1-216-073-00	METAL CHIP	10K	5%	1/10W
R508	1-216-109-00	METAL CHIP	330K	5%	1/10W
R509	1-216-081-00	METAL CHIP	22K	5%	1/10W
R510	1-216-083-00	METAL CHIP	27K	5%	1/10W
R511	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R512	1-216-162-00	METAL CHIP	33	5%	1/8W
R513	1-216-162-00	METAL CHIP	33	5%	1/8W
R514	1-216-081-00	METAL CHIP	22K	5%	1/10W
R515	1-216-099-00	METAL CHIP	120K	5%	1/10W
R516	1-216-097-00	METAL CHIP	100K	5%	1/10W
R517	1-216-095-00	METAL CHIP	82K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R518	1-216-081-00	METAL CHIP	22K	5%	1/10W
R519	1-216-089-00	METAL CHIP	47K	5%	1/10W
R520	1-216-097-00	METAL CHIP	100K	5%	1/10W
R521	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R522	1-216-114-00	METAL CHIP	510K	5%	1/10W
R524	1-216-089-00	METAL CHIP	47K	5%	1/10W
R527	1-216-325-11	METAL CHIP	110K	1%	1/10W
R528	1-216-103-00	METAL CHIP	180K	5%	1/10W
R529	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R530	1-216-121-00	METAL CHIP	1M	5%	1/10W
R531	1-216-073-00	METAL CHIP	10K	5%	1/10W
R532	1-216-097-00	METAL CHIP	100K	1%	1/10W
R534	1-216-097-00	METAL CHIP	100K	5%	1/10W
R535	1-216-077-00	METAL CHIP	15K	5%	1/10W
R537	1-216-695-11	METAL CHIP	68K	0.50%	1/16W
R538	1-216-107-00	METAL CHIP	270K	1%	1/10W
R539	1-216-107-00	METAL CHIP	270K	1%	1/10W
R540	1-216-107-00	METAL CHIP	270K	1%	1/10W
R542	1-216-099-00	METAL CHIP	120K	5%	1/10W
R543	1-216-109-00	METAL CHIP	330K	5%	1/10W
R544	1-216-103-00	METAL CHIP	180K	5%	1/10W
R545	1-216-109-00	METAL CHIP	330K	5%	1/10W
R547	1-216-073-00	METAL CHIP	10K	5%	1/10W
R548	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R549	1-216-049-00	METAL CHIP	1K	5%	1/10W
R550	1-216-077-00	METAL CHIP	15K	5%	1/10W
R551	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R552	1-217-671-11	METAL CHIP	1	5%	1/10W
R553	1-217-671-11	METAL CHIP	1	5%	1/10W
R554	1-217-671-11	METAL CHIP	1	5%	1/10W
R555	1-217-671-11	METAL CHIP	1	5%	1/10W
R556	1-216-085-00	METAL CHIP	33K	5%	1/10W
R557	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R558	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R559	1-216-671-00	METAL CHIP	1	5%	1/10W
R560	1-216-671-00	METAL CHIP	1	5%	1/10W
R561	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R562	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R564	1-216-107-00	METAL CHIP	270K	1%	1/10W
R565	1-216-107-00	METAL CHIP	270K	1%	1/10W
R566	1-216-107-00	METAL CHIP	270K	5%	1/10W
R568	1-216-073-00	METAL CHIP	10K	5%	1/10W
R569	1-216-073-00	METAL CHIP	10K	5%	1/10W
R570	1-216-119-00	METAL CHIP	820K	5%	1/10W
R571	1-216-085-00	METAL CHIP	33K	5%	1/10W
R572	1-249-419-11	CARBON	1.5K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R573	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R601	1-216-097-00	METAL CHIP	100K	5%	1/10W
R602	1-216-097-00	METAL CHIP	100K	5%	1/10W
R603	1-216-077-00	METAL CHIP	15K	5%	1/10W
R801	1-216-027-00	METAL CHIP	120	5%	1/10W
R804	1-216-336-11	METAL CHIP	47K	1%	1/10W
R805	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R806	1-216-085-00	METAL CHIP	33K	5%	1/10W
R808	1-216-081-00	METAL CHIP	22K	5%	1/10W
R809	1-216-081-00	METAL CHIP	22K	5%	1/10W
R813	1-216-081-00	METAL CHIP	22K	5%	1/10W
R814	1-216-081-00	METAL CHIP	22K	5%	1/10W
R817	1-216-073-00	METAL CHIP	10K	5%	1/10W
R818	1-216-041-00	METAL CHIP	470	5%	1/10W
R819	1-216-109-00	METAL CHIP	330K	5%	1/10W
R821	1-216-085-00	METAL CHIP	33K	5%	1/10W
R822	1-216-077-00	METAL CHIP	15K	5%	1/10W
R823	1-216-077-00	METAL CHIP	15K	5%	1/10W
R824	1-216-077-00	METAL CHIP	15K	5%	1/10W
R825	1-216-081-00	METAL CHIP	22K	5%	1/10W
R826	1-216-109-00	METAL CHIP	330K	5%	1/10W
R827	1-216-073-00	METAL CHIP	10K	5%	1/10W
R828	1-216-009-00	METAL CHIP	22	5%	1/10W
R829	1-216-049-00	METAL CHIP	1K	5%	1/10W
R830	1-216-113-00	METAL CHIP	470K	5%	1/10W
R831	1-216-121-00	METAL CHIP	1M	5%	1/10W
R832	1-216-097-00	METAL CHIP	100K	5%	1/10W
RV301	1-237-092-11	RES, VAR, CARBON 10K/10K (VOLUME)			
RV401	1-237-325-11	RES, ADJ, METAL GLAZE 4.7K			
RV501	1-237-090-11	RES, ADJ, METAL GLAZE 22K			
RV502	1-237-090-11	RES, ADJ, METAL GLAZE 22K			
RV503	1-237-430-11	RES, ADJ, METAL GLAZE 47K			
RV504	1-237-429-11	RES, ADJ, METAL GLAZE 2.2K			
S801	1-554-911-11	SWITCH, LEAF (OPEN/CLOSE)			
S802	1-554-669-00	SWITCH, SLIDE (HOLD)			
S803	1-554-371-31	SWITCH, TACT (PLAY-MODE)			
S804	1-554-371-31	SWITCH, TACT (REMAIN/ENTER)			
S805	1-554-371-31	SWITCH, TACT (KEY-MODE)			
S806	1-554-371-31	SWITCH, TACT (FF)			
S807	1-554-371-31	SWITCH, TACT (FR)			
S903	1-553-198-00	SWITCH, LEAF (LIMIT)			
X601	1-567-737-11	VIBRATOR, CRYSTAL, 8.4672MHz			
X801	1-567-094-00	VIBRATOR, CERAMIC, 3.58MHz			

ACCESSORY & PACKING MATERIAL

Part No.	Description
⚠ 1-463-691-11	(US)........ADAPTOR, AC (AC-930A(U))
⚠ 1-463-694-11	(Canadian)...ADAPTOR, AC (AC-930(CA))
⚠ 1-463-700-11	(UK)........ADAPTOR, AC (AC-930A)
⚠ 1-463-701-11	(AUS)...ADAPTOR, AC (AC-930A)
⚠ 1-463-702-11	(E).....ADAPTOR, AC (AC-950W)
⚠ 1-463-705-11	(AEP)...ADAPTOR, AC (AC-930AEP)
⚠ 1-526-565-00	(E)...AC PLUG ADAPTOR
1-528-210-21	(AEP:BLACK,US,Canadian,UK,E,AUS) .....BATTERY PAC (BP-100)
1-528-210-31	(AEP:WHITE)...BATTERY PAC (BP-100)
1-555-658-21	CORD, CONNECTION
3-704-016-01	(AEP,UK,E:BLACK)...LABEL, COLOR
3-704-029-01	(AEP,UK,E:WHITE)...LABEL, COLOR
*3-764-443-11	(UK)....INSTRUCTION
3-765-700-13	(AEP,UK,E,AUS)...MANUAL, INSTRUCTION
3-765-700-21	(US,Canadian)....MANUAL, INSTRUCTION
3-765-700-31	(Canadian).......MANUAL, INSTRUCTION
3-765-700-41	(AEP)............MANUAL, INSTRUCTION
3-795-748-21	(US)...SAFETY INSTRUCTIONS, HEADPHONE
4-907-095-02	SHEET, PROTECTION
4-917-758-01	CUSHION (RIGHT)
4-917-759-01	CUSHION (LEFT)
4-917-761-01	(AEP,E,AUS)...INDIVIDUAL CARTON
4-917-763-01	(US)..........INDIVIDUAL CARTON
4-917-764-01	(Canadian)....INDIVIDUAL CARTON
4-917-796-01	(UK)..........INDIVIDUAL CARTON
4-917-770-01	CASE, ACCESSORY
*4-917-771-01	SPACER
4-917-781-01	BELT, CARRYING
4-917-782-01	CASE, CARRYING
4-917-797-01	(UK)...CARTON, HEADPHONE
8-952-266-94	(UK)...MDR-A10L/B SET

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-952-529-11

Sony Corporation

English
87A0598-1
Printed in Japan
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D-10/100

SERVICE MANUAL

D-10:
US Model
Canadian Model
D-100:
AEP Model
UK Model
E Model
AUS Model

No. 1
January, 1987

SUPPLEMENT

File this supplement with the Service Manual.

Subject: Change of Main and Servo Boards

Pattern of main and servo boards have been changed. Because of this, the following parts have been changed from lead type to chip type. Circuit has not been changed.

Changed parts:

C563	1-135-091-00	TANTAL CHIP	1MF	20%	16V
R446	1-216-089-00	METAL CHIP	47k	5%	1/10W
R534	1-216-081-00	METAL CHIP	22k	5%	1/10W
R572	1-216-053-00	METAL CHIP	1.5k	5%	1/10W

COMPACT DISC COMPONENT PLAYER

SONY®

9-952-529-81

Sony Corporation

English
87A0598-1
Printed in Japan

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AUD

MOUNTING DIAGRAM

Note on Mounting Diagram:

○ ▨ : side B pattern. (main board)

● ⊗ : Through hole. (main board)

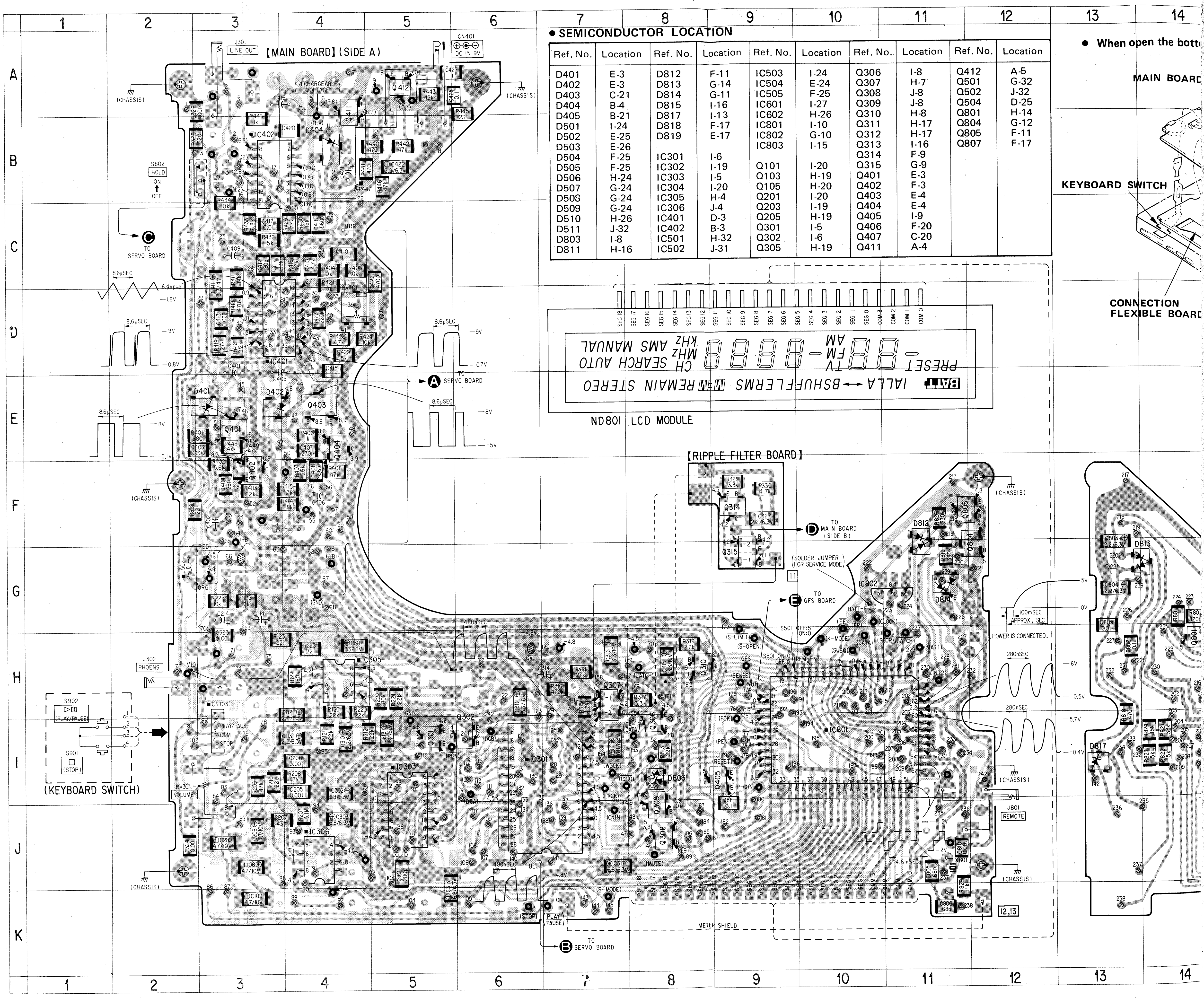
side B pattern

○ · ⊗—⊗ (servo board)

Through hole

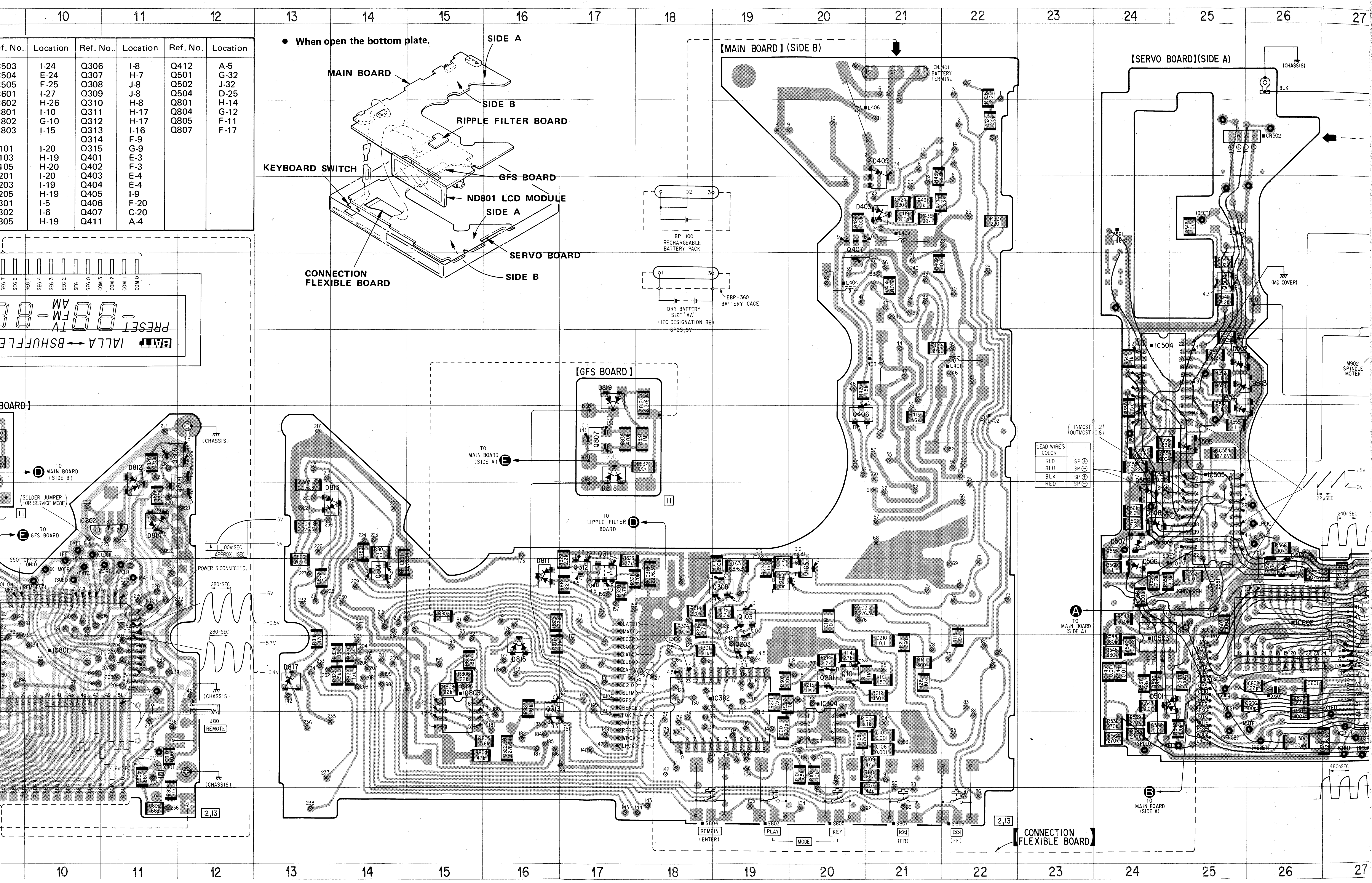
• SEMICONDUCTOR LOCATION

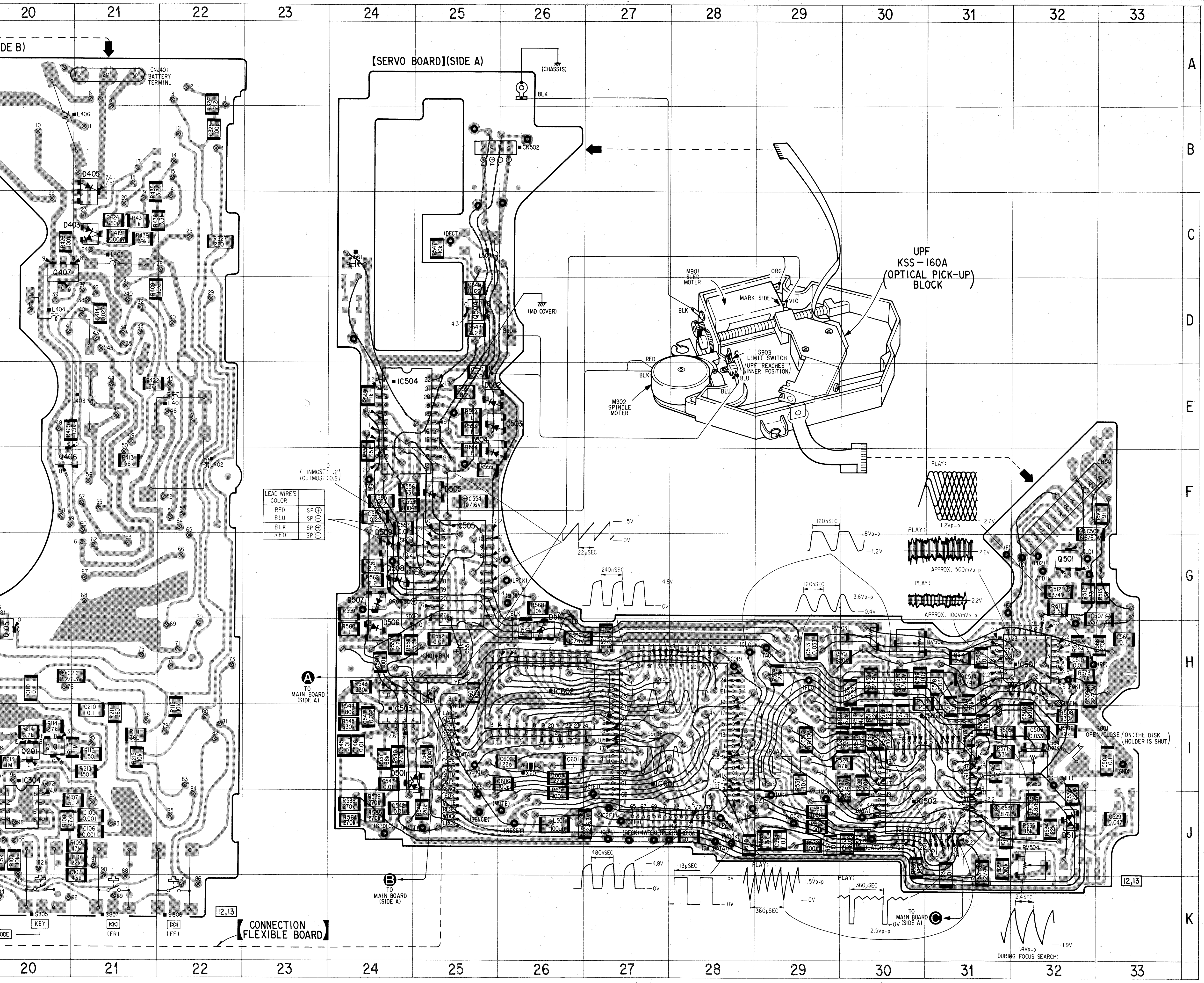
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D401	E-3	D812	F-11	IC503	I-24	Q306	I-8	Q412	A-5
D402	E-3	D813	G-14	IC504	E-24	Q307	H-7	Q501	G-32
D403	C-21	D814	G-11	IC505	F-25	Q308	J-8	Q502	J-32
D404	B-4	D815	I-16	IC601	I-27	Q309	J-8	Q504	D-25
D405	B-21	D817	I-13	IC602	H-26	Q310	H-8	Q801	H-14
D501	I-24	D818	F-17	IC801	I-10	Q311	H-17	Q804	G-12
D502	E-25	D819	E-17	IC802	G-10	Q312	H-17	Q805	F-11
D503	E-26			IC803	I-15	Q313	I-16	Q807	F-17
D504	F-25	IC301	I-6			Q314	F-9		
D505	F-25	IC302	I-19	Q101	I-20	Q315	G-9		
D506	H-24	IC303	I-5	Q103	H-19	Q401	E-3		
D507	G-24	IC304	I-20	Q105	H-20	Q402	F-3		
D508	G-24	IC305	H-4	Q201	I-20	Q403	E-4		
D509	G-24	IC306	J-4	Q203	I-19	Q404	E-4		
D510	H-26	IC401	D-3	Q205	H-19	Q405	I-9		
D511	J-32	IC402	B-3	Q301	I-5	Q406	F-20		
D803	I-8	IC501	H-32	Q302	I-6	Q407	C-20		
D811	H-16	IC502	J-31	Q305	H-19	Q411	A-4		


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J K
J301 LINE OUT
【MAIN BOARD】(SIDE A)
CN401 DC IN 9V
(CHASSIS)
RECHARGEABLE VOLTAGE
IC402
D404
Q411
Q412
S802 HOLD ON OFF
TO SERVO BOARD
8.6μSEC
6.4Vp-p
-1.8V
-9V
-0.8V
-8V
-0.1V
-5V
-0.7V
IC401
BRN
YEL
RED
ORG
(GND)
TO SERVO BOARD
D401
D402
Q401
Q402
Q403
Q404
ND801 LCD MODULE
PRESET TV CH SEARCH AUTO FM-AM MHz kHz AMS MANUAL
BATT IALLA ←→ BSHUFFLERMS MEM REMAIN STEREO
SEG 18 SEG 17 SEG 16 SEG 15 SEG 14 SEG 13 SEG 12 SEG 11 SEG 10 SEG 9 SEG 8 SEG 7 SEG 6 SEG 5 SEG 4 SEG 3 SEG 2 SEG 1 SEG 0 COM 3 COM 2 COM 1 COM 0
【RIPPLE FILTER BOARD】
Q314
Q315
TO MAIN BOARD (SIDE B)
(SOLDER JUMPER FOR SERVICE MODE)
TO GFS BOARD
IC802
D812
D813
D814
Q804
Q805
-5V
-0V
100mSEC APPROX. 1SEC
POWER IS CONNECTED.
280nSEC
-6V
-0.5V
-5.7V
-0.4V
J302 PHONES
S902 PLAY/PAUSE
S901 STOP
(KEYBOARD SWITCH)
CN103
PLAY/PAUSE COM STOP
RV301 VOLUME
IC305
IC303
IC306
IC301
Q301
Q302
Q306
Q307
Q308
Q309
Q310
Q405
D803
IC801
480nSEC
4.8V
(STOP)
PLAY PAUSE
(P-MODE)
(MUTE)
TO SERVO BOARD
METER SHIELD
J801 REMOTE
X801
12,13
D817
When open the bott
MAIN BOARD
KEYBOARD SWITCH
CONNECTION FLEXIBLE BOARD

ef. No.	Location	Ref. No.	Location	Ref. No.	Location
503	I-24	Q306	I-8	Q412	A-5
504	E-24	Q307	H-7	Q501	G-32
505	F-25	Q308	J-8	Q502	J-32
601	I-27	Q309	J-8	Q504	D-25
602	H-26	Q310	H-8	Q801	H-14
801	I-10	Q311	H-17	Q804	G-12
802	G-10	Q312	H-17	Q805	F-11
803	I-15	Q313	I-16	Q807	F-17
		Q314	F-9		
101	I-20	Q315	G-9		
103	H-19	Q401	E-3		
105	H-20	Q402	F-3		
201	I-20	Q403	E-4		
203	I-19	Q404	E-4		
205	H-19	Q405	I-9		
301	I-5	Q406	F-20		
302	I-6	Q407	C-20		
305	H-19	Q411	A-4		

- When open the bottom plate.


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
SIDE A
MAIN BOARD
SIDE B
RIPPLE FILTER BOARD
KEYBOARD SWITCH
GFS BOARD
ND801 LCD MODULE
SIDE A
SERVO BOARD
CONNECTION FLEXIBLE BOARD
SIDE B
BP-100 RECHARGEABLE BATTERY PACK
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
EBP-360 BATTERY CACE
【MAIN BOARD】(SIDE B)
CN401 BATTERY TERMINL
【SERVO BOARD】(SIDE A)
(CHASSIS)
BLK
CN502
(MD COVER)
M902 SPINDLE MOTER
【GFS BOARD】
TO MAIN BOARD (SIDE A)
TO LIPPLE FILTER BOARD
TO MAIN BOARD (SIDE B)
TO GFS BOARD
(SOLDER JUMPER FOR SERVICE MODE)
POWER IS CONNECTED.
100mSEC APPROX. 1SEC
280nSEC
J801 REMOTE
IC801
IC802
IC803
IC302
IC304
IC503
IC504
IC505
IC602
LEAD WIRE'S COLOR
RED SP⊕
BLU SP⊖
BLK SP⊕
RED SP⊖
(INMOST:1.2)
(OUTMOST:0.8)
22μSEC
240nSEC
480nSEC
S804 REMEIN (ENTER)
S803 PLAY
MODE
S805 KEY
S807 (FR)
S806 (FF)
【CONNECTION FLEXIBLE BOARD】
12,13
TO MAIN BOARD (SIDE A)

20
21
22
23
24
25
26
27
28
29
30
31
32
33
A
B
C
D
E
F
G
H
I
J
K
DE B)
CNJ401 BATTERY TERMINL
[SERVO BOARD](SIDE A)
(CHASSIS)
BLK
CN502
(DFCT)
(MD COVER)
UPF
KSS-160A
(OPTICAL PICK-UP)
BLOCK
M901 SLED MOTER
MARK SIDE
ORG
V10
BLK
RED
S903 LIMIT SWITCH (UPF REACHES INNER POSITION)
BLU
M902 SPINDLE MOTER
IC504
IC505
IC503
IC601
IC502
IC501
CN501
Q501
D405
D403
Q407
Q406
Q201
Q101
IC304
(INNOST 1.2) (OUTMOST 0.8)
LEAD WIRE'S COLOR
RED SP⊕
BLU SP⊖
BLK SP⊕
RED SP⊖
1.5V
0V
22μSEC
240nSEC
4.8V
0V
120nSEC
1.8Vp-p
1.2V
120nSEC
3.6Vp-p
0.4V
PLAY:
1.2Vp-p
2.7V
PLAY:
2.2V
APPROX. 500mVp-p
PLAY:
2.2V
APPROX. 100mVp-p
A TO MAIN BOARD (SIDE A)
B TO MAIN BOARD (SIDE A)
C TO MAIN BOARD (SIDE A)
480nSEC
4.8V
0V
13μSEC
5V
0V
PLAY:
1.5Vp-p
0V
360μSEC
PLAY:
360μSEC
0V
2.5Vp-p
2.4SEC
1.4Vp-p
1.9V
DURING FOCUS SEARCH:
S801 OPEN/CLOSE (ON: THE DISK HOLDER IS SHUT)
(GND)
(S-LIMIT)
RV501
RV502
RV503
RV504
12,13
S805 KEY
S807 (FR)
S806 (FF)
ODE
CONNECTION FLEXIBLE BOARD
12,13

D-10/100

SERVICE MANUAL

D-10:
US Model
Canadian Model
D-100:
AEP Model
UK Model
E Model
AUS Model

SUPPLEMENT

File this supplement with the Service Manual.

No. 2

Subjects:

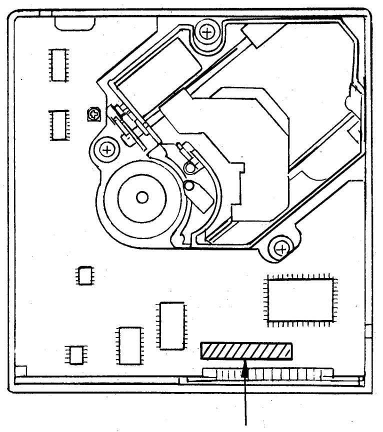
- **Main Board and Servo Board Change**
- **Circuit Change**
- **Microcomputer Change**

1. Main Board and Servo Board Change

Pattern of main and servo boards have been changed. Because of this change, parts which were mounted on GFS and ripple filter boards have been transfered to main board, and GFS and ripple filter boards have gone out of use.

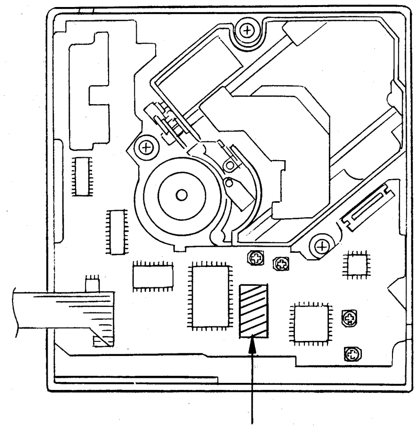
New Board Identification

– main board –



1-620-607-14

– servo board –



1-620-608-14

COMPACT DISC COMPACT PLAYER

SONY®

AUD

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2. Circuit Change

Because of boards change, circuit has been changed.

Changed parts:

Ref. No.	Former	New	Remarks
C501	TANTALUM (CHIP) 6.8μF	1-163-038-00 CERAMIC (CHIP) 0.1μF	changed
C506	TANTALUM (CHIP) 10μF	1-131-380-00 TANTALUM 33μF 10V	changed
C564	CERAMIC (CHIP) 0.0033μF	1-163-053-00 CERAMIC (CHIP) 0.0033μF	changed
C565	CERAMIC 0.001μF	1-163-141-00 CERAMIC (CHIP) 0.001μF	changed
C567	——	1-163-095-00 CERAMIC (CHIP) 12PF	added
C568	——	1-131-377-00 TANTALUM 10μF	added
C813	——	1-162-638-00 CERAMIC (CHIP) 1μF	added
D510	DIODE SB05-05CP	8-719-938-72 DIODE SB01-05CP	changed
IC801	IC CXP5806-003Q	8-752-802-19 IC CXP5806-006Q	changed (*1)
JR501	——	1-216-295-00 METAL (CHIP) 0Ω	added
JR503	METAL (CHIP) 0Ω	——	deleted
JR802	METAL (CHIP) 0Ω	——	deleted
L401	COIL (WITH CORE)	1-459-739-11 COIL (WITH CORE) 100mH	changed
L402	COIL (WITH CORE)	1-459-738-11 COIL (WITH CORE) 120mH	changed
L403	COIL (WITH CORE)	1-459-739-11 COIL (WITH CORE) 100mH	changed
L404	COIL (WITH CORE)	1-459-737-11 COIL (WITH CORE) 80mH	changed
L405	COIL (WITH CORE)	1-459-739-11 COIL (WITH CORE) 100mH	changed
L406	COIL (WITH CORE)	1-459-738-11 COIL (WITH CORE) 120mH	changed
Q806	——	8-729-159-64 TRANSISTOR 2SD596	added
R503	METAL (CHIP) 27kΩ	——	deleted
R504	METAL (CHIP) 33kΩ	——	deleted
R505	METAL (CHIP) 1kΩ	1-216-049-00 METAL (CHIP) 1kΩ	changed
R510	METAL (CHIP) 27kΩ	1-216-079-00 METAL (CHIP) 18kΩ	changed
R519	METAL (CHIP) 47kΩ	——	deleted
R524	METAL (CHIP) 47kΩ	——	deleted
R534	METAL (CHIP) 100kΩ	1-216-081-00 METAL (CHIP) 22kΩ	changed
R566	METAL (CHIP) 270kΩ	——	deleted
R574	——	1-216-071-00 METAL (CHIP) 8.2kΩ	added
R575	——	1-216-073-00 METAL (CHIP) 10kΩ	added
R819	METAL (CHIP) 330kΩ	1-216-073-00 METAL (CHIP) 10kΩ	changed
R833	——	1-216-089-00 METAL (CHIP) 47kΩ	added
R834	——	1-216-045-00 METAL (CHIP) 680Ω	added
R835	——	1-216-059-00 METAL (CHIP) 2.7kΩ	added
RV505	——	1-237-430-11 RES, ADJ, METAL GLAZE 47kΩ	added (*2)

*1. There are cases where CXP5806-003Q is mounted for IC801 on new board.

*2. Because of circuit change, focus gain adjustment has been changed.
Adjustment location change: two solder bridges → RV505

3. Microcomputer Change

Microcomputer IC801 has been changed from CXP5806-003Q to CXP5806-006Q. But there are cases where CXP5806-003Q is mounted for IC801 on new board. Because of the difference of microcomputer, a part of circuit varies (Existence of GFS circuit).

		Use CXP5806-003Q for IC801	Use CXP5806-006Q for IC801
GFS Circuit	C812	use	not use
	D818	use	not use
	D819	use	not use
	Q807	use	not use
	R830	use	not use
	R831	use	not use
	R832	use	not use
	JR803	not use	use

The above difference shows "[----]" on schematic diagram and mounting diagram.
Microcomputer CXP5806-006Q has built-in service mode. As setting operating and releasing procedure is the same as that of CXP5806-003Q, refer to D-10/100 Service Manual.

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- → : signal path.
- ━━ : B+ bus.
- ╍╍ : B– bus.
- Voltages, waveform and total current are measured with top panel closed.
- Power voltage is DC 9 V and fed with regulated dc power supply from DC in 9 V (external power voltage) jack.
  Voltages are DC with respect to ground in service mode.
  Voltage variations may be noted dur to normal production tolerances.
  no mark : stop mode
  (   ): play mode
  <   >: Stop condition on normal operation when connecting a 680 Ω resistor between pin ② and pin ③ of CNJ401 and storting the base of Q412 to the ground.
- Waveforms are taken to ground in service mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Total current is measured in service mode.
- CXP5806-003Q: Use CXP5806-003Q for IC801.
  CXP5806-006Q: Use CXP5806-006Q for IC801.
- Switch

Ref. No.	Switch	Position
S801	OPEN/CLOSE	ON
S802	HOLD	OFF
S803	PLAY-MODE	OFF
S804	REMAIN/ENTER	OFF
S805	KEY-MODE	OFF
S806	▶▶❙ (FF)	OFF
S807	❙◀◀ (FR)	OFF
S901	■ (STOP)	OFF
S902	▶ (PLAY/PAUSE)	OFF
S903	LIMIT	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

D-10/100

MOUNTING DIAGRAM

Note on Mounting Diagram:

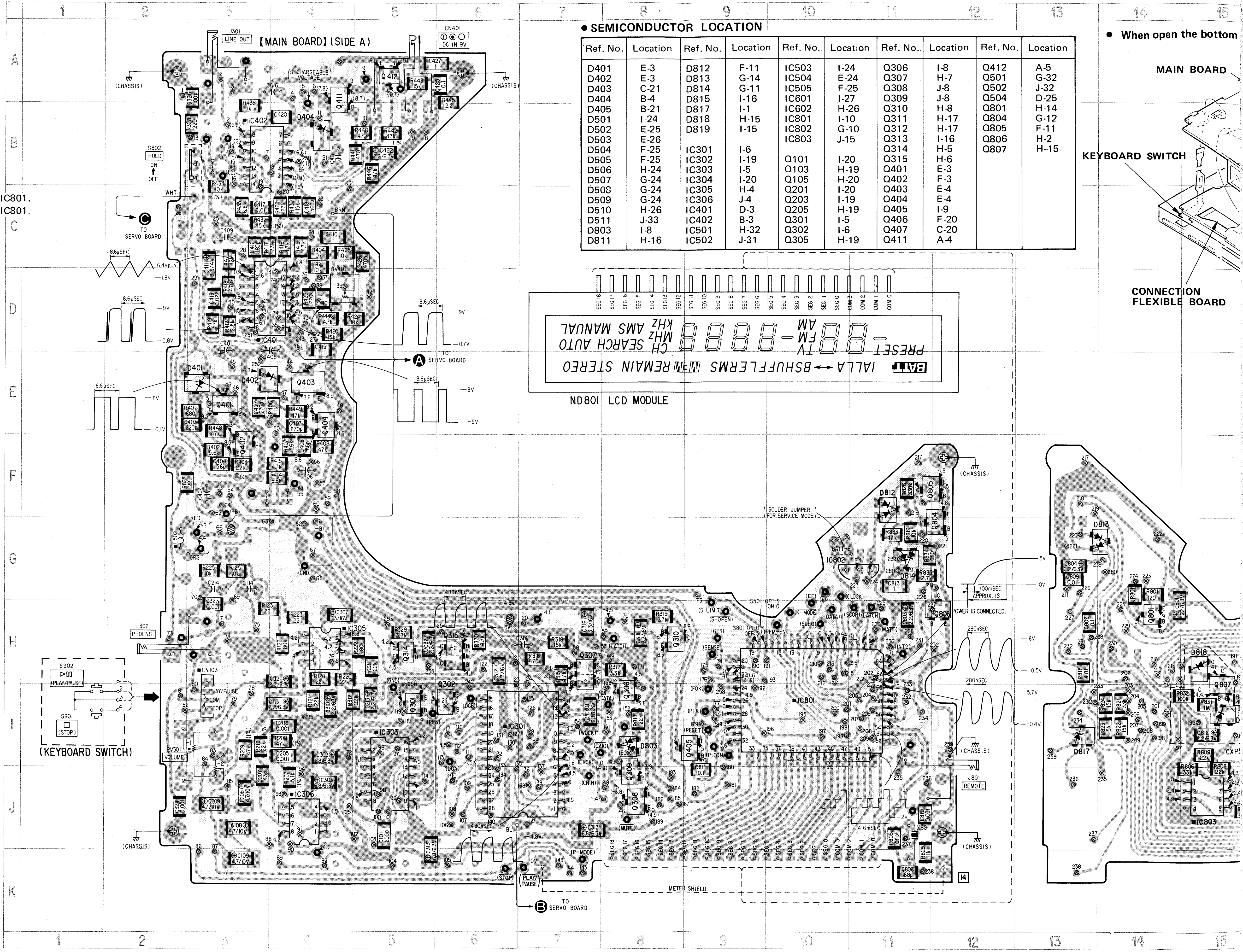
- ░ : side B pattern. (main board)
- ⊗ : Through hole. (main board)

side B pattern
(servo board)
Through hole

- CXP5806-003Q: Use CXP5806-003Q for IC801.
  CXP5806-006Q: Use CXP5806-006Q for IC801.

• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D401	E-3	D812	F-11	IC503	I-24	Q306	I-8	Q412	A-5
D402	E-3	D813	G-14	IC504	E-24	Q307	H-7	Q501	G-32
D403	C-21	D814	G-11	IC505	F-25	Q308	J-8	Q502	J-32
D404	B-4	D815	I-16	IC601	I-27	Q309	J-8	Q504	D-25
D405	B-21	D817	I-1	IC602	H-26	Q310	H-8	Q801	H-14
D501	I-24	D818	H-15	IC801	I-10	Q311	H-17	Q804	G-12
D502	E-25	D819	I-15	IC802	G-10	Q312	H-17	Q805	F-11
D503	E-26			IC803	J-15	Q313	I-16	Q806	H-2
D504	F-25	IC301	I-6			Q314	H-5	Q807	H-15
D505	F-25	IC302	I-19	Q101	I-20	Q315	H-6		
D506	H-24	IC303	I-5	Q103	H-19	Q401	E-3		
D507	G-24	IC304	I-20	Q105	H-20	Q402	F-3		
D508	G-24	IC305	H-4	Q201	I-20	Q403	E-4		
D509	G-24	IC306	J-4	Q203	I-19	Q404	E-4		
D510	H-26	IC401	D-3	Q205	H-19	Q405	I-9		
D511	J-33	IC402	B-3	Q301	I-5	Q406	F-20		
D803	I-8	IC501	H-32	Q302	I-6	Q407	C-20		
D811	H-16	IC502	J-31	Q305	H-19	Q411	A-4		


【MAIN BOARD】(SIDE A)
J301 LINE OUT
CN401 DC IN 9V
(CHASSIS)
RECHARGEABLE VOLTAGE
S802 HOLD ON OFF
WHT
BRN
TO SERVO BOARD
8.6μSEC
6.4Vp-p
-1.8V
-9V
-0.8V
-0.7V
-8V
-5V
-0.1V
YEL
RED
ORG
(GND)
J302 PHOENS
S902 ▷II (PLAY/PAUSE)
S901 □ (STOP)
(KEYBOARD SWITCH)
CN103
PLAY/PAUSE
COM
STOP
RV301 VOLUME
480nSEC
4.8V
BLU
0V
(STOP)
(PLAY/PAUSE)
(P-MODE)
METER SHIELD
ND801 LCD MODULE
SOLDER JUMPER FOR SERVICE MODE
S501 OFF:5 ON:0
S801 ON:0 OFF:5
100mSEC APPROX. IS
POWER IS CONNECTED.
280nSEC
5V
0V
-6V
-0.5V
-5.7V
-0.4V
J801 REMOTE
4.6mSEC
14
IC801
IC802
IC803
IC301
IC303
IC305
IC306
IC401
IC402
• When open the bottom
MAIN BOARD
KEYBOARD SWITCH
CONNECTION FLEXIBLE BOARD
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J K

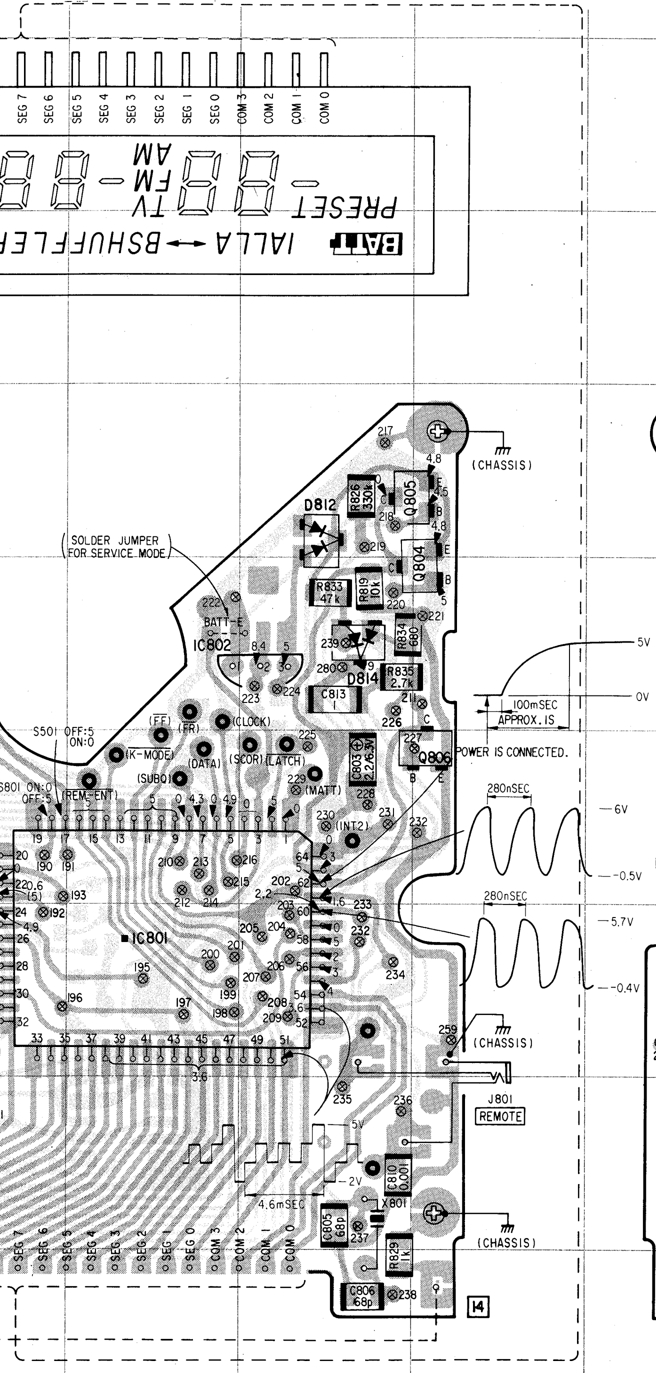
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

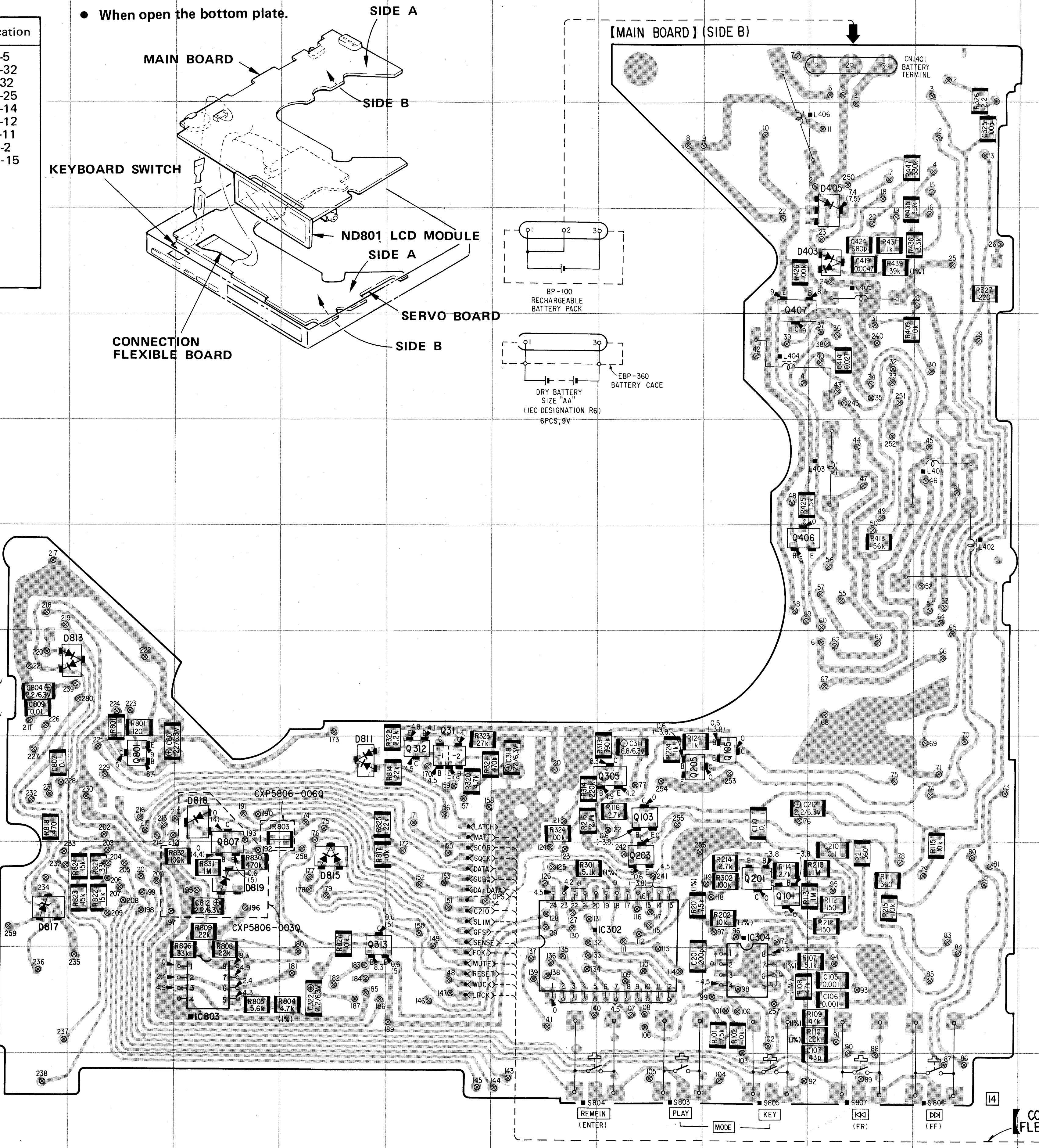
TION

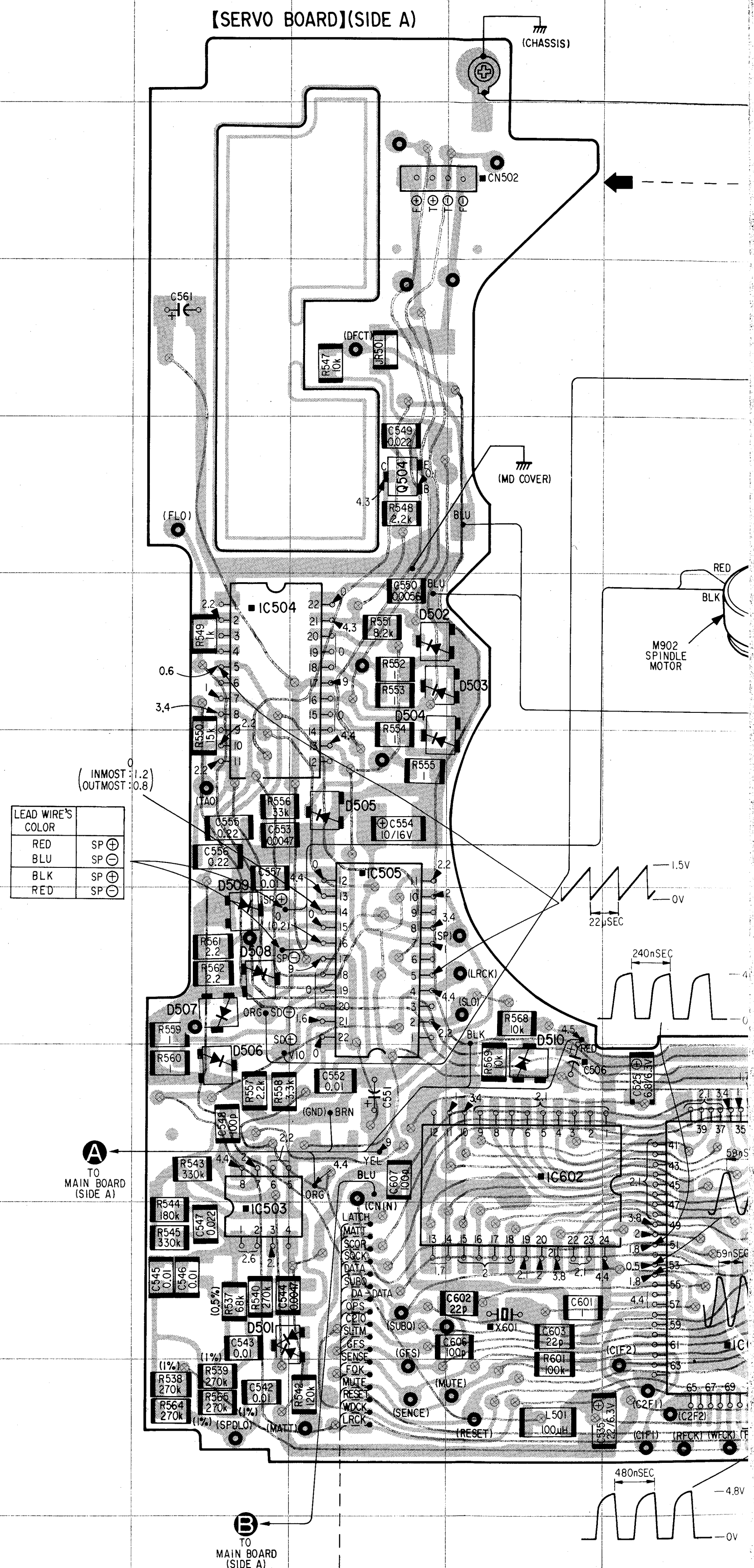
ocation	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
F-11	IC503	I-24	Q306	I-8	Q412	A-5
G-14	IC504	E-24	Q307	H-7	Q501	G-32
G-11	IC505	F-25	Q308	J-8	Q502	J-32
I-16	IC601	I-27	Q309	J-8	Q504	D-25
I-1	IC602	H-26	Q310	H-8	Q801	H-14
H-15	IC801	I-10	Q311	H-17	Q804	G-12
I-15	IC802	G-10	Q312	H-17	Q805	F-11
	IC803	J-15	Q313	I-16	Q806	H-2
I-6			Q314	H-5	Q807	H-15
I-19	Q101	I-20	Q315	H-6		
I-5	Q103	H-19	Q401	E-3		
I-20	Q105	H-20	Q402	F-3		
H-4	Q201	I-20	Q403	E-4		
J-4	Q203	I-19	Q404	E-4		
D-3	Q205	H-19	Q405	I-9		
B-3	Q301	I-5	Q406	F-20		
H-32	Q302	I-6	Q407	C-20		
J-31	Q305	H-19	Q411	A-4		

- When open the bottom plate.

SIDE A
MAIN BOARD
SIDE B
KEYBOARD SWITCH
ND801 LCD MODULE
SIDE A
SERVO BOARD
CONNECTION FLEXIBLE BOARD
SIDE B

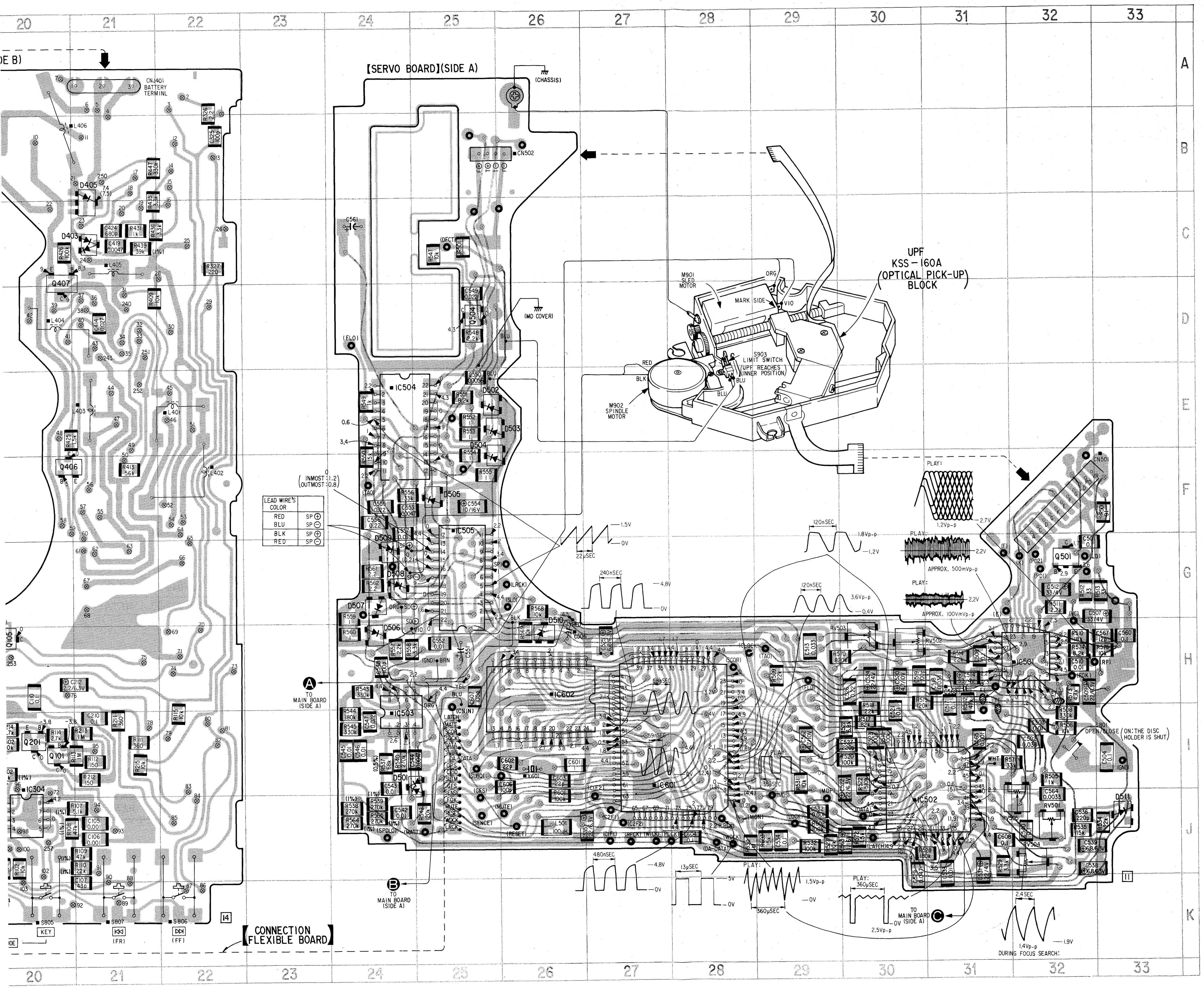

SEG 7
SEG 6
SEG 5
SEG 4
SEG 3
SEG 2
SEG 1
SEG 0
COM 3
COM 2
COM 1
COM 0
BATT
ALL
SHUFFLE
PRESET
TV
FM
AM
(CHASSIS)
SOLDER JUMPER FOR SERVICE MODE
D812
R826
Q805
Q804
R833 47k
R819 10k
IC802
BATT-E
D814
C813
R835 2.7k
Q806
5V
0V
100mSEC APPROX. IS
POWER IS CONNECTED.
S501 OFF:5 ON:0
S801 ON:0 OFF:5
(K-MODE)
(DATA)
(CLOCK)
(SUBQ)
(SCOR)
(LATCH)
(MATT)
(REM-ENT)
(INT2)
280nSEC
-6V
-0.5V
5.7V
-0.4V
IC801
J801
REMOTE
4.6mSEC
X801
C805
C806 68p
R829
(CHASSIS)
14


BP-100 RECHARGEABLE BATTERY PACK
EBP-360 BATTERY CACE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
【MAIN BOARD】(SIDE B)
CNJ401 BATTERY TERMINL
L406
D405
D403
Q407
L405
L404
L403
L401
L402
Q406
R413 56k
R327 220
D813
D818
Q807
D819
CXP5806-006Q
CXP5806-003Q
JR803
IC803
D815
D817
D811
Q312
Q311
Q313
Q305
Q103
Q203
Q201
Q101
Q105
IC302
IC304
LATCH
MATT
SCOR
SQCK
DATA
SUBQ
DA-DATA
C210
SLIM
GFS
SENSE
FOK
MUTE
RESET
WOCK
LRCK
S804
REMEIN
(ENTER)
S803
PLAY
MODE
S805
KEY
S807
(FR)
S806
(FF)
14
【CONNECTION FLEXIBLE BOARD】


【SERVO BOARD】(SIDE A)
(CHASSIS)
CN502
C561
(DFCT)
R547 10k
C549
Q504
R548 2.2k
(MD COVER)
(FLO)
IC504
D502
D503
D504
M902 SPINDLE MOTOR
RED
BLK
INMOST:1.2
OUTMOST:0.8
D505
C554 10/16V
IC505
D509
D508
D507
D506
D510
1.5V
0V
22μSEC
240nSEC
IC503
IC602
C602 22p
X601
C601
L501 100μH
480nSEC
4.8V
0V
A
TO MAIN BOARD (SIDE A)
B
TO MAIN BOARD (SIDE A)

LEAD WIRE'S COLOR	
RED	SP⊕
BLU	SP⊖
BLK	SP⊕
RED	SP⊖

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27


【SERVO BOARD】(SIDE A)
(CHASSIS)
CN502
CNJ401 BATTERY TERMINL
(MD COVER)
(FLO)
IC504
IC505
IC503
IC602
IC601
IC502
IC501
Q501
D511
UPF KSS-160A (OPTICAL PICK-UP BLOCK)
M901 SLED MOTOR
M902 SPINDLE MOTOR
MARK SIDE
S903 LIMIT SWITCH (UPF REACHES INNER POSITION)
RED
BLK
BLU
ORG
0 (INMOST : 1.2) (OUTMOST : 0.8)
LEAD WIRE'S COLOR
RED SP ⊕
BLU SP ⊖
BLK SP ⊕
RED SP ⊖
A TO MAIN BOARD (SIDE A)
B TO MAIN BOARD (SIDE A)
C TO MAIN BOARD (SIDE A)
【CONNECTION FLEXIBLE BOARD】
S805 KEY
S807 (FR)
S806 (FF)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT)
PLAY:
1.2Vp-p
2.7V
APPROX. 500mVp-p
APPROX. 100mVp-p
2.2V
120nSEC
1.8Vp-p
1.2V
3.6Vp-p
0.4V
240nSEC
4.8V
0V
1.5V
22μSEC
480nSEC
13μSEC
5V
360μSEC
1.5Vp-p
360μSEC
2.5Vp-p
2.4SEC
1.4Vp-p
1.9V
DURING FOCUS SEARCH:
14
11
20 21 22 23 24 25 26 27 28 29 30 31 32 33
A B C D E F G H I J K

D-10/100

SERVICE MANUAL

US Model
Canadian Model
D-10
AEP Model
UK Model
E Model
AUS Model
D-100

No. 3

SUPPLEMENT

File this supplement with the Service Manual.

Subject: Saudi Arabia model has been added for D-100.

As only the following accessories are different from that of E model, refer to D-10/100 service manual (Part No. 9-952-259-11), suppliment 1 (Part No. 9-952-259-81) and suppliment 2 (Part No. 9-952-259-82) for the other information.

Saudi Arabia model		E model	
1-463-394-11	ADAPTOR, AC (AC-190A)	1-463-702-11	ADAPTOR, AC (AC-950W)
1-506-409-00	ADAPTOR, CONVERSION	1-526 565-00	AC PLUG ADAPTOR

COMPACT DISC COMPACT PLAYER

SONY

English
87I05035-1
Printed in Japan
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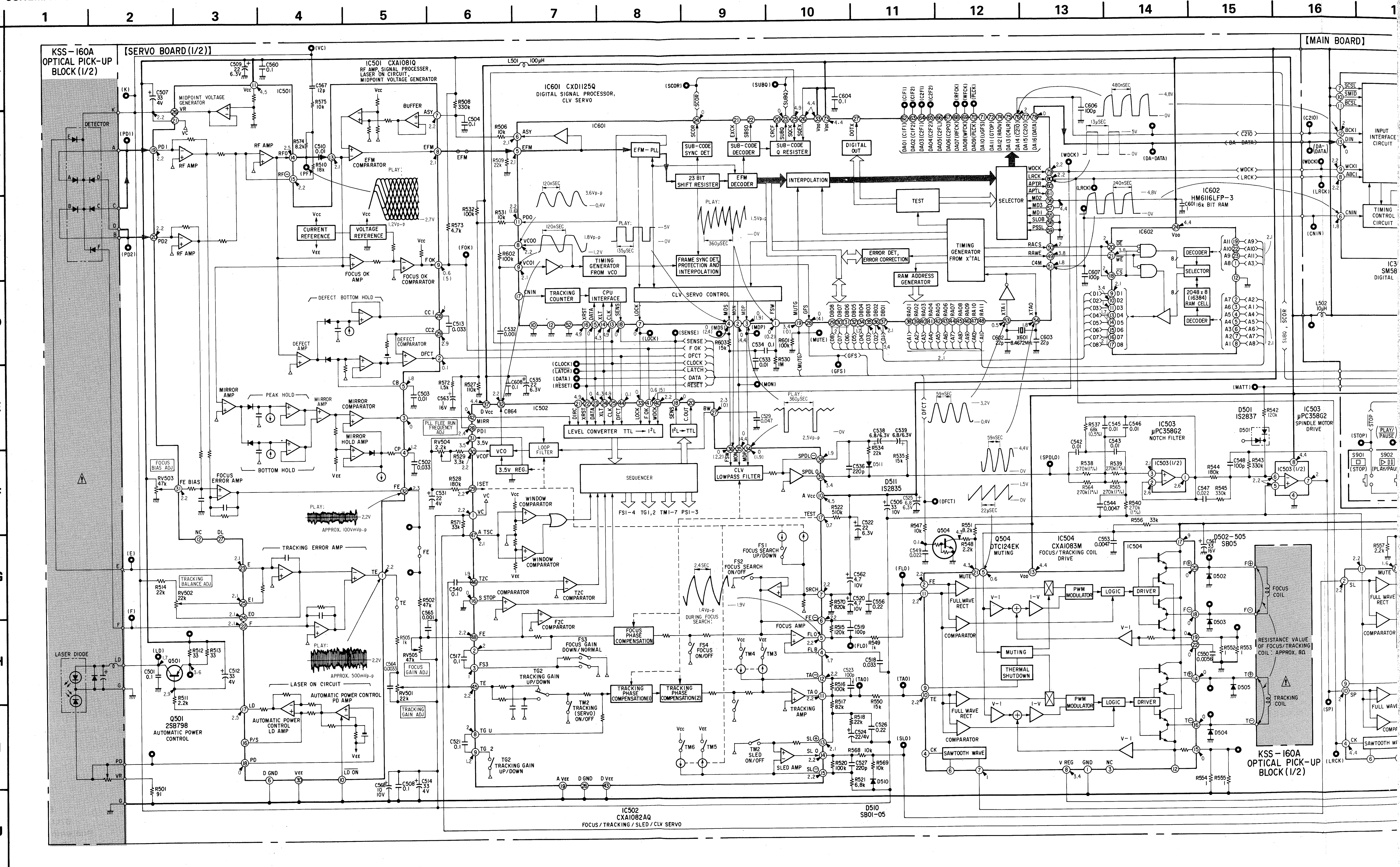
Sony Corporation
Audio Group

9-952-529-83

AUD

SCHEMATIC DIAGRAM

- See page 5 for notes.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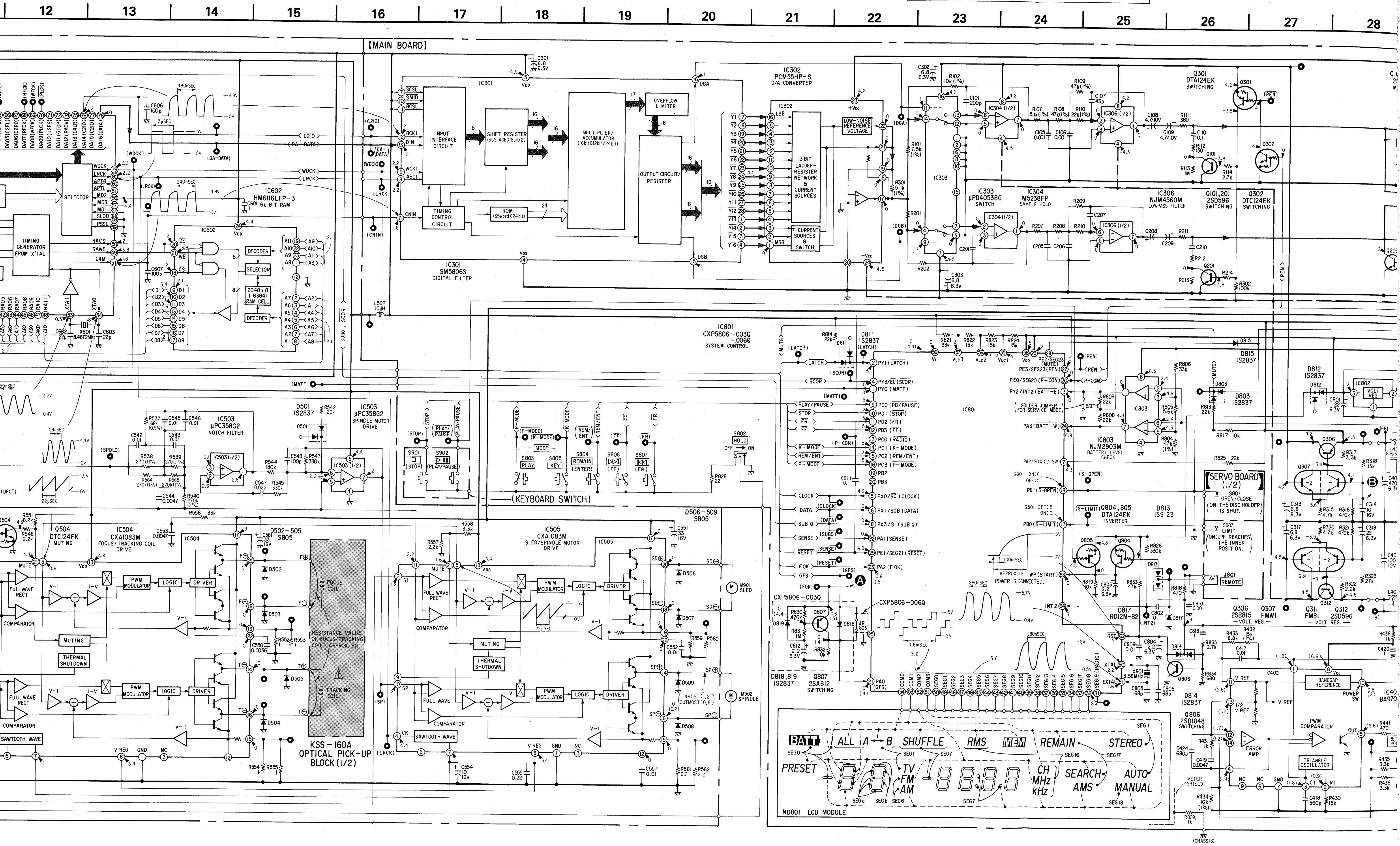
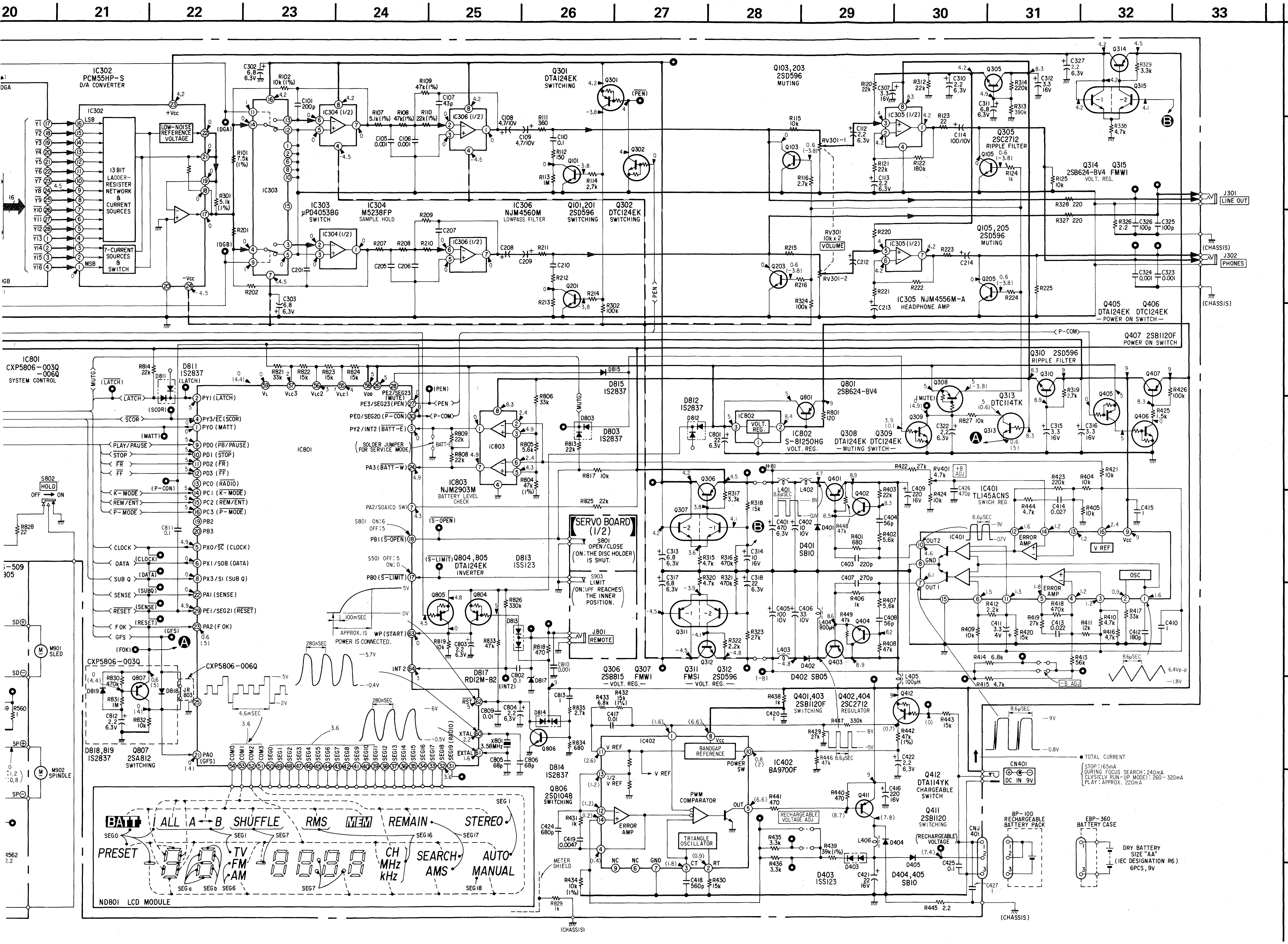
A
B
C
D
E
F
G
H
I
J
KSS-160A OPTICAL PICK-UP BLOCK (1/2)
[SERVO BOARD (1/2)]
[MAIN BOARD]
DETECTOR
LASER DIODE
IC501 CXA1081Q
RF AMP, SIGNAL PROCESSER, LASER ON CIRCUIT, MIDPOINT VOLTAGE GENERATOR
MIDPOINT VOLTAGE GENERATOR
RF AMP
BUFFER
EFM COMPARATOR
CURRENT REFERENCE
VOLTAGE REFERENCE
FOCUS OK AMP
FOCUS OK COMPARATOR
DEFECT BOTTOM HOLD
DEFECT AMP
DEFECT COMPARATOR
MIRROR AMP
PEAK HOLD
MIRROR COMPARATOR
MIRROR HOLD AMP
BOTTOM HOLD
FOCUS BIAS ADJ
FOCUS ERROR AMP
TRACKING ERROR AMP
TRACKING BALANCE ADJ
LASER ON CIRCUIT
AUTOMATIC POWER CONTROL PD AMP
AUTOMATIC POWER CONTROL LD AMP
Q501 2SB798 AUTOMATIC POWER CONTROL
FOCUS GAIN ADJ
TRACKING GAIN ADJ
PLAY: APPROX. 100mVp-p
PLAY: APPROX. 500mVp-p
L501 100μH
IC601 CXD1125Q
DIGITAL SIGNAL PROCESSOR, CLV SERVO
EFM-PLL
23 BIT SHIFT RESISTER
EFM DECODER
SUB-CODE SYNC DET
SUB-CODE DECODER
SUB-CODE Q RESISTER
DIGITAL OUT
INTERPOLATION
TEST
SELECTOR
TIMING GENERATOR FROM X'TAL
ERROR DET, ERROR CORRECTION
RAM ADDRESS GENERATOR
FRAME SYNC DET, PROTECTION AND INTERPOLATION
TIMING GENERATOR FROM VCO
TRACKING COUNTER
CPU INTERFACE
CLV SERVO CONTROL
X601 8.4672MHz
IC602 HM6116LFP-3
16k BIT RAM
2048 x 8 (16384) RAM CELL
DECODER
PLL FLEE RUN FREQUENCY ADJ
VCO
LOOP FILTER
3.5V REG.
LEVEL CONVERTER TTL → I²L
I²L → TTL
SEQUENCER
FSI-4 TGI,2 TMI-7 PSI-3
CLV LOWPASS FILTER
WINDOW COMPARATOR
TZC COMPARATOR
FZC COMPARATOR
COMPARATOR
FOCUS PHASE COMPENSATION
FOCUS GAIN DOWN/NORMAL
TRACKING GAIN UP/DOWN
TRACKING PHASE COMPENSATION(1)
TRACKING PHASE COMPENSATION(2)
TM2 TRACKING (SERVO) ON/OFF
TG2 TRACKING GAIN UP/DOWN
FS1 FOCUS SEARCH UP/DOWN
FS2 FOCUS SEARCH ON/OFF
FS4 FOCUS ON/OFF
1.4Vp-p DURING FOCUS SEARCH
FOCUS AMP
TRACKING AMP
SLED AMP
TM2 SLED ON/OFF
IC502 CXA1082AQ
FOCUS / TRACKING / SLED / CLV SERVO
D510 SB01-05
D511 IS2835
D501 IS2837
IC503 μPC358G2 NOTCH FILTER
IC503 μPC358G2 SPINDLE MOTOR DRIVE
Q504 DTC124EK MUTING
IC504 CXA1083M FOCUS/TRACKING COIL DRIVE
D502-505 SB05
MUTE
FULL WAVE RECT
PWM MODULATOR
LOGIC
DRIVER
MUTING
THERMAL SHUTDOWN
SAWTOOTH WAVE
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL: APPROX. 8Ω.
KSS-160A OPTICAL PICK-UP BLOCK (1/2)
INPUT INTERFACE CIRCUIT
TIMING CONTROL CIRCUIT
S901 (STOP)
S902 (PLAY/PAUSE)
(STOP)
(PLAY/PAUSE)
SM58
DIGITAL


12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
[MAIN BOARD]
IC301 SM5806S DIGITAL FILTER
INPUT INTERFACE CIRCUIT
SHIFT RESISTER (35STAGE X 16bit X 2)
MULTIPLIER/ACCUMULATOR (16bit X 12bit/24bit)
OVERFLOW LIMITER
OUTPUT CIRCUIT/RESISTER
TIMING CONTROL CIRCUIT
ROM (35word X 24bit)
IC302 PCM55HP-S D/A CONVERTER
13 BIT LADDER-RESISTER NETWORK & CURRENT SOURCES
7-CURRENT SOURCES & SWITCH
LOW-NOISE REFERENCE VOLTAGE
IC303 μPD4053BG SWITCH
IC304 M5238FP SAMPLE HOLD
IC306 NJM4560M LOWPASS FILTER
Q101,201 2SD596 SWITCHING
Q301 DTA124EK SWITCHING
Q302 DTC124EK SWITCHING
IC602 HM6116LFP-3 16k BIT RAM
DECODER
SELECTOR
2048 x 8 (16384) RAM CELL
SELECTOR
TIMING GENERATOR FROM X'TAL
X601 8.4672MHz
IC503 μPC358G2 NOTCH FILTER
IC503 μPC358G2 SPINDLE MOTOR DRIVE
D501 1S2837
S901 (STOP)
S902 (PLAY/PAUSE)
S803 PLAY
S805 KEY
S804 REMAIN (ENTER)
S806 (FF)
S807 (FR)
S802 HOLD OFF ON
(KEYBOARD SWITCH)
IC801 CXP5806-003Q -006Q SYSTEM CONTROL
D811 1S2837 (LATCH)
D815 1S2837
D812 1S2837
D803 1S2837
IC802 VOLT. REG.
IC803 NJM2903M BATTERY LEVEL CHECK
SOLDER JUMPER FOR SERVICE MODE
SERVO BOARD (1/2)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.)
S903 LIMIT (ON: UPF REACHES THE INNER POSITION.)
Q804,805 DTA124EK INVERTER
D813 1SS123
J801 REMOTE
D817 RD12M-B2
Q806 2SD1048 SWITCHING
D814 1S2837
Q306 2SB815 Q307 FMW1 — VOLT. REG. —
Q311 FMS1 Q312 2SD596 — VOLT. REG. —
IC402 BA970
BANDGAP REFERENCE
PWM COMPARATOR
ERROR AMP
TRIANGLE OSCILLATOR
POWER SW
METER SHIELD
(CHASSIS)
Q504 DTC124EK MUTING
IC504 CXA1083M FOCUS/TRACKING COIL DRIVE
D502-505 SB05
FULL WAVE RECT
COMPARATOR
MUTING
THERMAL SHUTDOWN
PWM MODULATOR
LOGIC
DRIVER
SAWTOOTH WAVE
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL : APPROX. 8Ω
KSS-160A OPTICAL PICK-UP BLOCK (1/2)
IC505 CXA1083M SLED/SPINDLE MOTOR DRIVE
D506-509 SB05
M901 SLED
M902 SPINDLE
INMOST: 1.2 OUTMOST: 0.8
CXP5806-003Q
CXP5806-006Q
Q807 2SA812 SWITCHING
D818,819 1S2837
APPROX. IS POWER IS CONNECTED.
ND801 LCD MODULE
BATT ALL A↔B SHUFFLE RMS MEM REMAIN STEREO
PRESET TV FM AM CH MHz kHz SEARCH AMS AUTO MANUAL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C
D
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F
G
H
I
J
IC302 PCM55HP-S D/A CONVERTER
IC302
LSB
MSB
13 BIT LADDER-RESISTER NETWORK & CURRENT SOURCES
7-CURRENT SOURCES & SWITCH
LOW-NOISE REFERENCE VOLTAGE
+Vcc
-Vcc
(DGA)
(DGB)
IC303 µPD4053BG SWITCH
IC304 M5238FP SAMPLE HOLD
IC306 NJM4560M LOWPASS FILTER
Q101,201 2SD596 SWITCHING
Q302 DTC124EK SWITCHING
Q301 DTA124EK SWITCHING
(PEN)
Q103,203 2SD596 MUTING
RV301 10k x 2 VOLUME
RV301-1
RV301-2
Q105,205 2SD596 MUTING
IC305 NJM4556M-A HEADPHONE AMP
Q305 2SC2712 RIPPLE FILTER
Q314 Q315 2SB624-BV4 FMW1 VOLT. REG.
J301 LINE OUT
J302 PHONES
(CHASSIS)
Q405 Q406 DTA124EK DTC124EK —POWER ON SWITCH—
Q407 2SB1120F POWER ON SWITCH
Q310 2SD596 RIPPLE FILTER
(P-COM)
Q801 2SB624-BV4
D812 1S2837
IC802 S-81250HG VOLT. REG.
Q308 Q309 DTA124EK DTC124EK —MUTING SWITCH—
Q313 DTC114TK
(MUTE)
IC801 CXP5806-003Q -006Q SYSTEM CONTROL
D811 1S2837
D815 1S2837
D803 1S2837
IC803 NJM2903M BATTERY LEVEL CHECK
SOLDER JUMPER FOR SERVICE MODE
PA3 (BATT-W)
PY2/INT2 (BATT-E)
PE0/SEG20 (P-CON)
PE3/SEG23 (PEN)
PE2/SEG23 (MUTE)
PY1 (LATCH)
PY3/EC (SCOR)
PY0 (MATT)
PD0 (PB/PAUSE)
PD1 (STOP)
PD2 (FR)
PD3 (FF)
PC0 (RADIO)
PC1 (K-MODE)
PC2 (REM/ENT)
PC3 (P-MODE)
PB2
PB3
PX0/SC (CLOCK)
PX1/SOB (DATA)
PX3/SI (SUB Q)
PA1 (SENSE)
PE1/SEG21 (RESET)
PA2 (F OK)
PA0 (GFS)
PB1 (S-OPEN)
PB0 (S-LIMIT)
WP (START)
INT 2
RST
XTAL
EXTAL
SERVO BOARD (1/2)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.
S903 LIMIT (ON: UPF REACHES THE INNER POSITION.
S801 ON:6 OFF:5
S501 OFF:5 ON:0
APPROX. 1S POWER IS CONNECTED.
J801 REMOTE
Q804,805 DTA124EK INVERTER
D813 1SS123
D817 RD12M-B2
X801 3.58MHz
S802 HOLD OFF ON
M901 SLED
M902 SPINDLE
CXP5806-003Q
CXP5806-006Q
D818,819 1S2837
Q807 2SA812 SWITCHING
D814 1S2837
Q806 2SD1048 SWITCHING
METER SHIELD
BATT
ALL
A-B
SHUFFLE
RMS
MEM
REMAIN
STEREO
PRESET
TV
FM
AM
CH
MHz
kHz
SEARCH
AMS
AUTO
MANUAL
ND801 LCD MODULE
Q306 Q307 2SB815 FMW1 —VOLT. REG.—
Q311 Q312 FMS1 2SD596 —VOLT. REG.—
D401 SB10
D402 SB05
Q401,403 2SB1120F SWITCHING
Q402,404 2SC2712 REGULATOR
IC401 TL1145ACNS SWICH REG
ERROR AMP
V REF
OSC
+B ADJ
-B ADJ
IC402 BA9700F
BANDGAP REFERENCE
PWM COMPARATOR
TRIANGLE OSCILLATOR
POWER SW
Q412 DTA114YK CHARGEABLE SWITCH
Q411 2SB1120 SWITCHING
RECHARGEABLE VOLTAGE ADJ
(RECHARGEABLE VOLTAGE)
D403 1SS123
D404,405 SB10
CN401 DC IN 9V
BP-100 RECHARGEABLE BATTERY PACK
EBP-360 BATTERY CASE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
TOTAL CURRENT
STOP: 165mA
DURING FOCUS SEARCH: 240mA
CLV(CLV RUN-UP MODE): 260-320mA
PLAY: APPROX. 220mA

D-10/100

SONY.
SERVICE MANUAL

US Model
Canadian Model
D-10
AEP Model
UK Model
E Model
Australian Model
D-100

SUPPLEMENT-4

File this supplement with the Service Manual.

Subject:
1. **Correction of Microcomputer's Type Number**
2. **Change of Microcomputer**
3. **Change of Circuit and Insulator**

1. Microcomputer's type number was misprinted in the service manual supplement-2 (manual part No. 9-952-529-82). Correct below parts in the service manual supplement-2.

(Incorrect)		**(Correct)**
CX5806-003Q	⇨	CX5086-003Q
CX5806-006Q		CX5086-006Q

2. Microcomputer (IC801) has been changed.

(Former)	CXP5086-006Q
	⇩
(New)	CXP5086-008Q Part No. 8-752-802-37

There is no change due to microcomputer's change. CXP5086-008Q is interchangeable with CXP5086-006Q, but not with CXP5086-003Q. See page 3 of service manual supplement-2 for detail.

English
88C0592-1
Printed in Japan
© 1988. 3

9-952-529-84

Sony Corporation
Audio Group

Published by A/V Engineering Service Dept.

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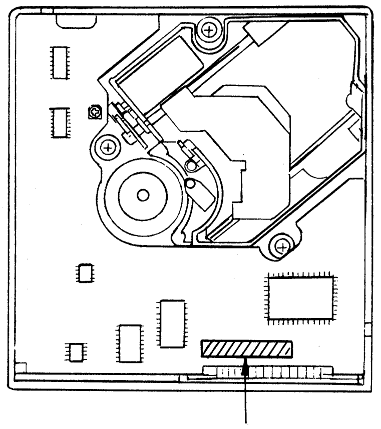
3. Pattern of main and servo boards have been changed, and ALT board has been added.

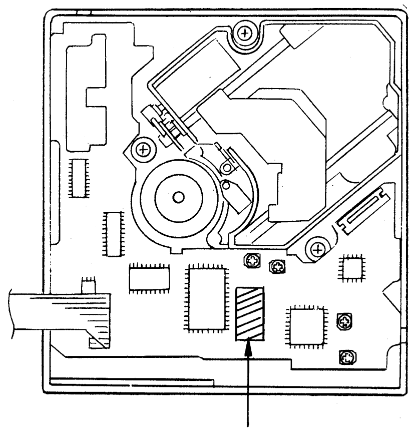
Model	Serial No.
US	179,756 and later
AEP	150,301 and later
UK	194,001 and later
E	194,501 and later
Australian	171,001 and later

New Board Identification

– main board –



– servo board –

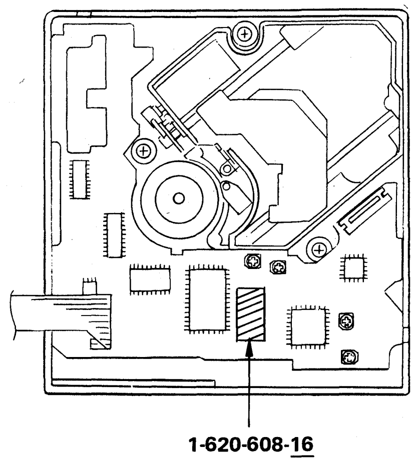


Because of this, change, below parts have been changed.

Ref. No.	Former Type	New Type		Remarks
	Description	Part No.	Description	
C328	————	1-135-093-21	TANTAL. CHIP 10 μF 10% 16V	added
C506	TANTALUM 33 μF 10V	1-131-374-00	TANTALUM 33 μF 10% 16V	changed
C568	TANTALUM 10 μF 10V	1-131-381-00	TANTALUM 47 μF 20% 6.3V	changed
C569	————	1-163-054-00	CERAMIC CHIP 0.0039 μF 10% 50V	added
C570	————	1-163-141-00	CERAMIC CHIP 0.001 μF 5% 50V	added
C571	————	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	added
C811	CERAMIC CHIP 0.1 μF		————	deleted
C812	TANTAL. CHIP 2.2 μF 6.3V		————	deleted
D301	————	8-719-105-82	DIODE RD5.1M-B2	added
D406	————	8-729-938-78	DIODE SB10-05PCP	added
D818	DIODE 1S2837		————	deleted
D819	DIODE 1S2837		————	deleted
IC506	————	8-759-100-94	IC μPC358G2	added
JR803	METAL CHIP 0 Ω 1/10W		————	deleted
PS401	————	1-532-637-21	LINK, IC	added
Q807	TRANSISTOR 2SA812		————	deleted

n

– servo board –

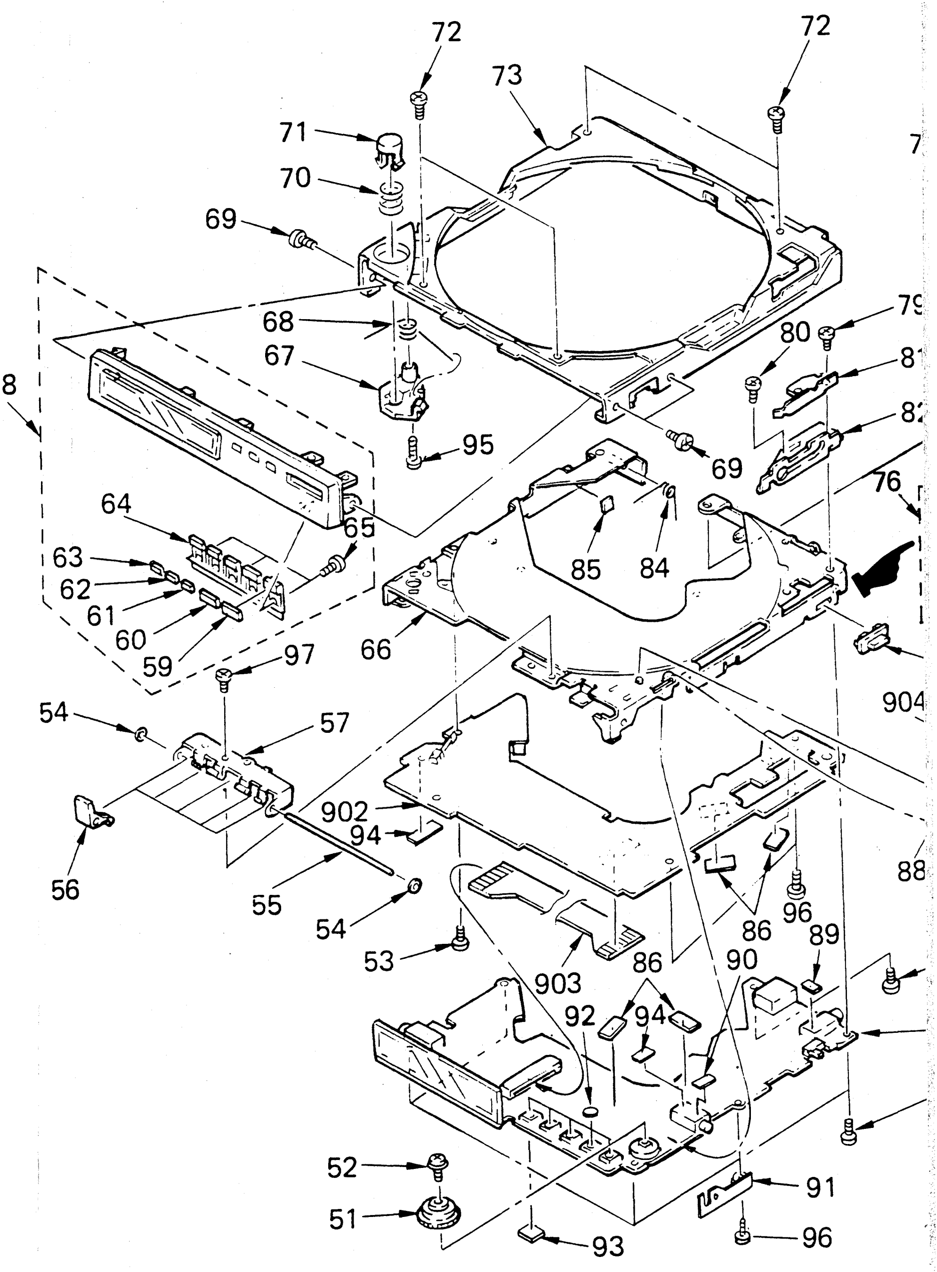


ed.

New Type					Remarks
lo.	Description				
·093-21	TANTAL. CHIP	10 μF	10%	16V	added
·374-00	TANTALUM	33 μF	10%	16V	changed
·381-00	TANTALUM	47 μF	20%	6.3V	changed
·054-00	CERAMIC CHIP	0.0039 μF	10%	50V	added
·141-00	CERAMIC CHIP	0.001 μF	5%	50V	added
·117-00	CERAMIC CHIP	100PF	5%	50V	added
	————				deleted
	————				deleted
·105-82	DIODE	RD5.1M-B2			added
·938-78	DIODE	SB10-05PCP			added
	————				deleted
	————				deleted
·100-94	IC	μPC358G2			added
	————				deleted
·637-21	LINK, IC				added
	————				deleted

Ref. No.	Former Type			New Type					Remarks
	Description			Part No.	Description				
R329	METAL CHIP	3.3 kΩ	1/10W	1-216-065-00	METAL CHIP	4.7 kΩ	5%	1/10W	changed
R330	METAL CHIP	4.7 kΩ	1/10W	1-216-073-00	METAL CHIP	10 kΩ	5%	1/10W	changed
R331	————			1-216-047-00	METAL CHIP	820 Ω	5%	1/10W	added
R332	————			1-216-089-00	METAL CHIP	47 kΩ	5%	1/10W	added
R502	METAL CHIP	47 kΩ	1/10W	1-216-081-00	METAL CHIP	22 kΩ	5%	1/10W	changed
R508	METAL CHIP	330 kΩ	1/10W	1-216-119-00	METAL CHIP	820 kΩ	5%	1/10W	changed
R521	METAL CHIP	6.8 kΩ	1/10W	1-216-065-00	METAL CHIP	4.7 kΩ	5%	1/10W	changed
R571	METAL CHIP	33 kΩ	1/10W		————				deleted
R576	————			1-216-073-00	METAL CHIP	10 kΩ	5%	1/10W	added
R577	————			1-216-094-00	METAL CHIP	75 kΩ	5%	1/10W	added
R578	————			1-216-094-00	METAL CHIP	75 kΩ	5%	1/10W	added
R579	————			1-216-086-00	METAL CHIP	36 kΩ	5%	1/10W	added
R580	————			1-216-083-00	METAL CHIP	27 kΩ	5%	1/10W	added
R581	————			1-216-129-00	METAL CHIP	2.2 MΩ	5%	1/10W	added
R603	METAL CHIP	15 kΩ	1/10W		————				deleted
R830	METAL CHIP	470 kΩ	1/10W		————				deleted
R831	METAL CHIP	1 MΩ	1/10W		————				deleted
R832	METAL CHIP	100 kΩ	1/10W		————				deleted
R836	————			1-216-298-00	METAL CHIP	2.2 Ω	5%	1/10W	added

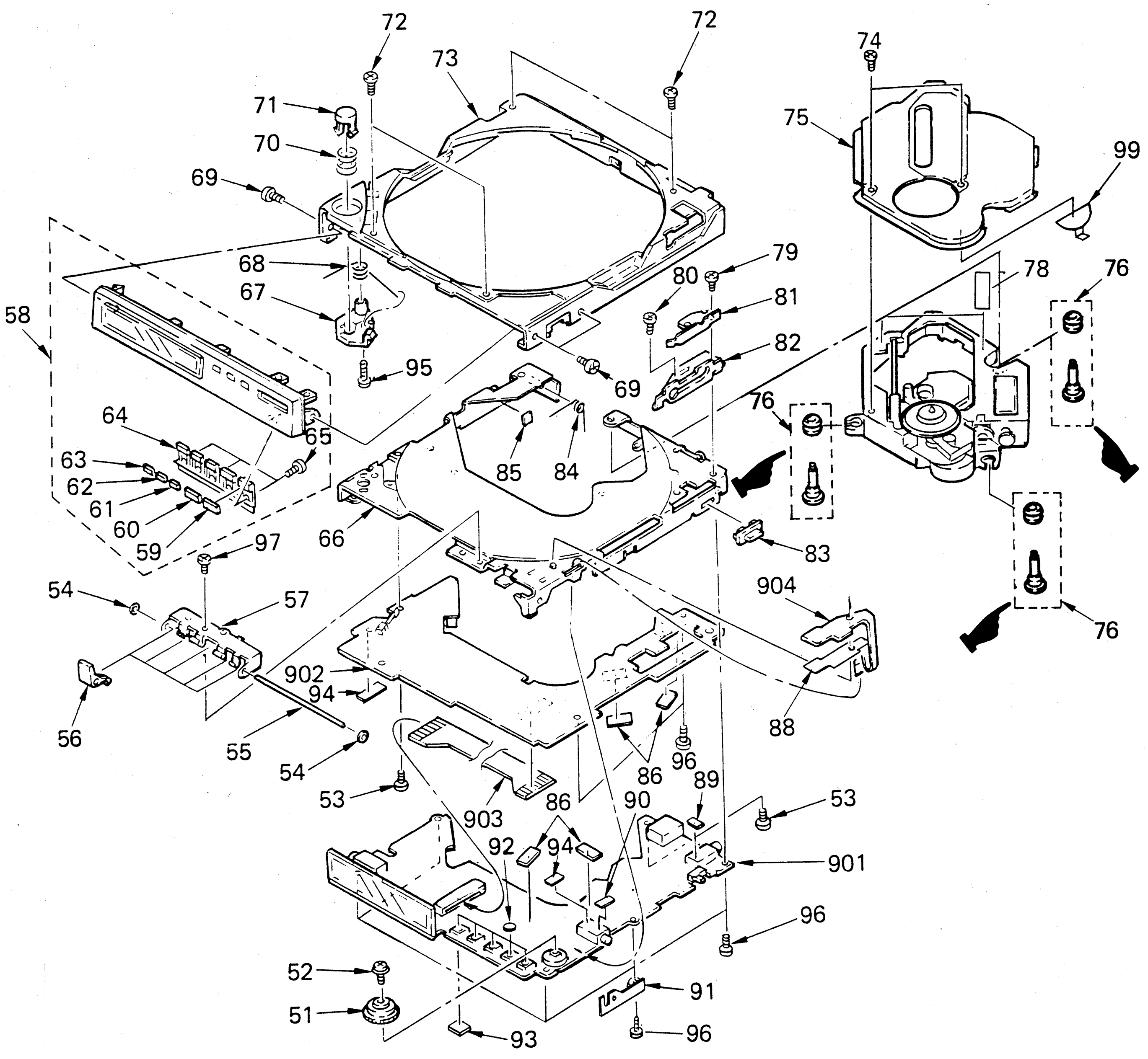
Insulator has been also changed (☛ portion).
New insulator is supplied as ass'y (three insulators).



76 X-4917-723-1 INSULATOR ASSY (three insulators)

New Type				Remarks
Description				
METAL CHIP	4.7 kΩ	5%	1/10W	changed
METAL CHIP	10 kΩ	5%	1/10W	changed
METAL CHIP	820 Ω	5%	1/10W	added
METAL CHIP	47 kΩ	5%	1/10W	added
METAL CHIP	22 kΩ	5%	1/10W	changed
METAL CHIP	820 kΩ	5%	1/10W	changed
METAL CHIP	4.7 kΩ	5%	1/10W	changed
———				deleted
METAL CHIP	10 kΩ	5%	1/10W	added
METAL CHIP	75 kΩ	5%	1/10W	added
METAL CHIP	75 kΩ	5%	1/10W	added
METAL CHIP	36 kΩ	5%	1/10W	added
METAL CHIP	27 kΩ	5%	1/10W	added
METAL CHIP	2.2 MΩ	5%	1/10W	added
———				deleted
———				deleted
———				deleted
———				deleted
METAL CHIP	2.2 Ω	5%	1/10W	added

Insulator has been also changed (☛ portion).
New insulator is supplied as ass'y (three insulators).



76 X-4917-723-1 INSULATOR ASSY (three insulators)

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- ▬▬ : B+ bus.
- ▬ ▬ ▬ : B– bus.
- Voltages, waveform and total current are measured with top panel closed.
- Power voltage is DC 9 V and fed with regulated dc power supply from DC in 9 V (external power voltage) jack.
  Voltages are DC with respect to ground in service mode.
  Voltage variations may be noted dur to normal production tolerances.
  no mark : stop mode
  ( ): play mode
  < >: Stop condition on normal operation when connecting a 680 Ω resistor between pin ② and pin ③ of CNJ401 and storting the base of Q412 to the ground.
- Waveforms are taken to ground in service mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Total current is measured in service mode.
- Switch

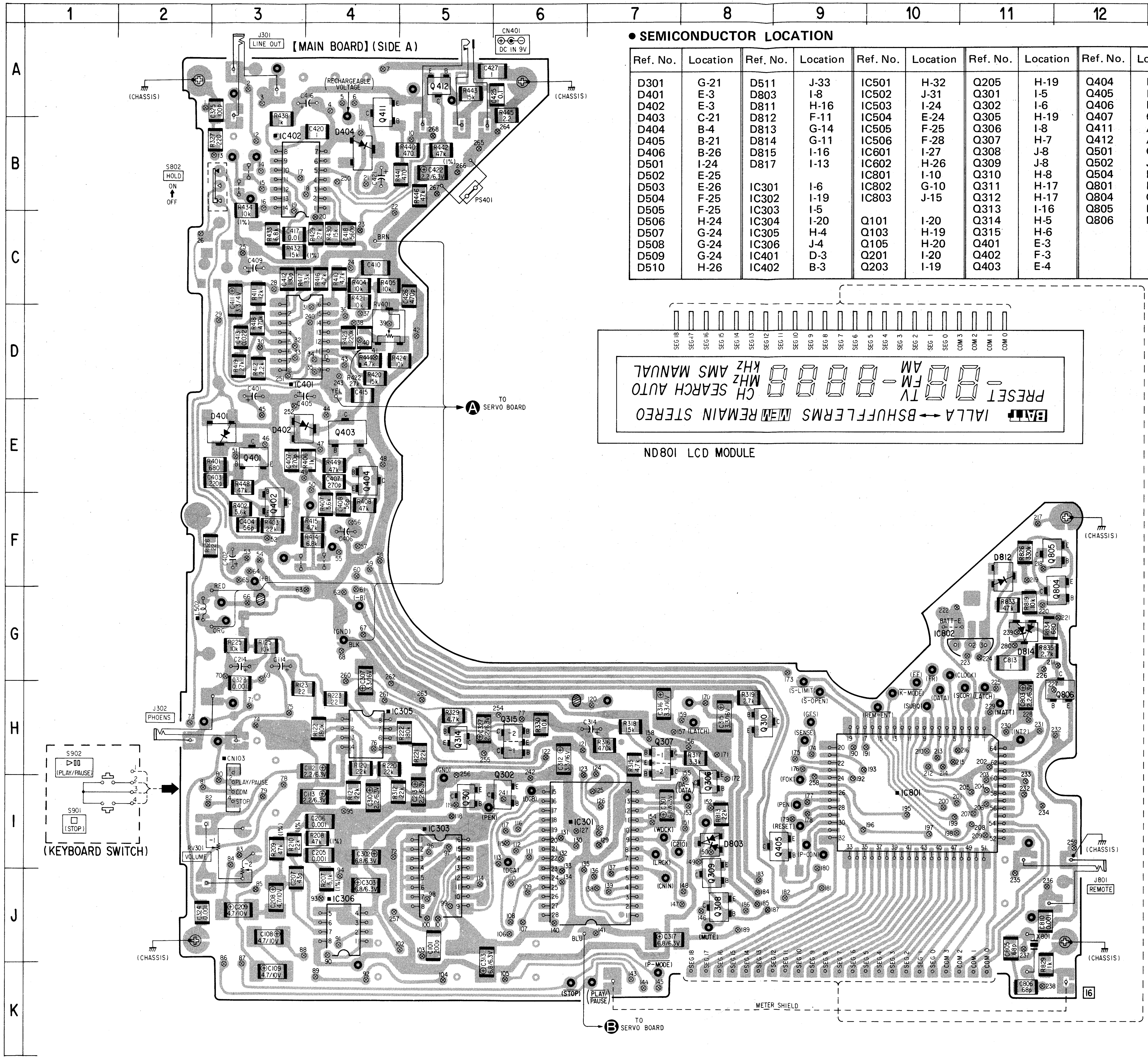
Ref. No.	Switch	Position
S801	OPEN/CLOSE	ON
S802	HOLD	OFF
S803	PLAY-MODE	OFF
S804	REMAIN/ENTER	OFF
S805	KEY-MODE	OFF
S806	⏭ (FF)	OFF
S807	⏮ (FR)	OFF
S901	■ (STOP)	OFF
S902	⏯ (PLAY/PAUSE)	OFF
S903	LIMIT	OFF

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MOUNTING DIAGRAM

Note:

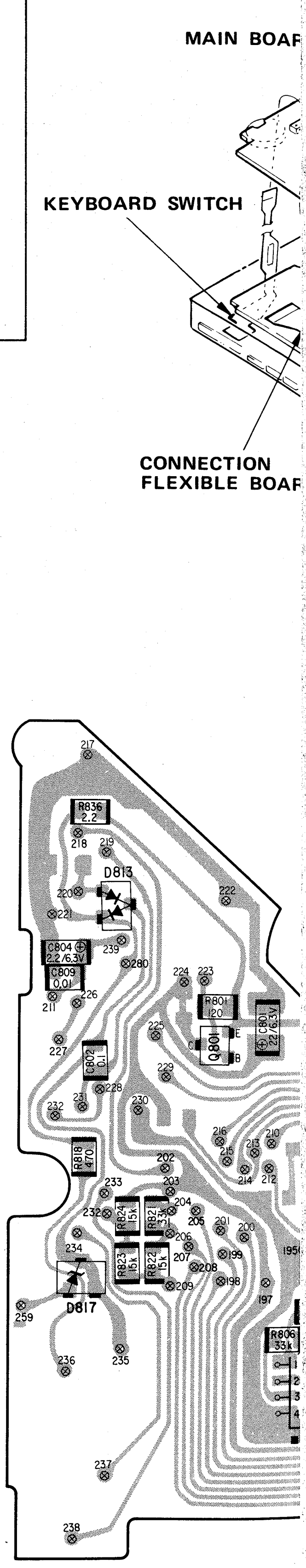
- ⊗ : Through hole. (main board)
- side B pattern (servo board) Through hole


[MAIN BOARD] (SIDE A)
J301 LINE OUT
CN401 DC IN 9V
(RECHARGEABLE VOLTAGE)
(CHASSIS)
S802 HOLD ON OFF
PS401
TO SERVO BOARD
J302 PHONES
S902 ▷II (PLAY/PAUSE)
S901 □ (STOP)
(KEYBOARD SWITCH)
RV301 VOLUME
IC301
IC302
IC303
IC305
IC306
IC401
IC402
IC801
IC802
J801 REMOTE
METER SHIELD
TO SERVO BOARD
ND801 LCD MODULE
PRESET TV FM AM CH MHz kHz SEARCH AUTO AMS MANUAL
BATT IALLA BSHUFFLERMS MEM REMAIN STEREO

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D301	G-21	D511	J-33	IC501	H-32	Q205	H-19	Q404	E-4
D401	E-3	D803	I-8	IC502	J-31	Q301	I-5	Q405	I-9
D402	E-3	D811	H-16	IC503	I-24	Q302	I-6	Q406	F-20
D403	C-21	D812	F-11	IC504	E-24	Q305	H-19	Q407	C-20
D404	B-4	D813	G-14	IC505	F-25	Q306	I-8	Q411	A-4
D405	B-21	D814	G-11	IC506	F-28	Q307	H-7	Q412	A-5
D406	B-26	D815	I-16	IC601	I-27	Q308	J-8	Q501	G-32
D501	I-24	D817	I-13	IC602	H-26	Q309	J-8	Q502	J-32
D502	E-25			IC801	I-10	Q310	H-8	Q504	D-25
D503	E-26	IC301	I-6	IC802	G-10	Q311	H-17	Q801	H-14
D504	F-25	IC302	I-19	IC803	J-15	Q312	H-17	Q804	G-12
D505	F-25	IC303	I-5			Q313	I-16	Q805	F-11
D506	H-24	IC304	I-20	Q101	I-20	Q314	H-5	Q806	H-2
D507	G-24	IC305	H-4	Q103	H-19	Q315	H-6		
D508	G-24	IC306	J-4	Q105	H-20	Q401	E-3		
D509	G-24	IC401	D-3	Q201	I-20	Q402	F-3		
D510	H-26	IC402	B-3	Q203	I-19	Q403	E-4		

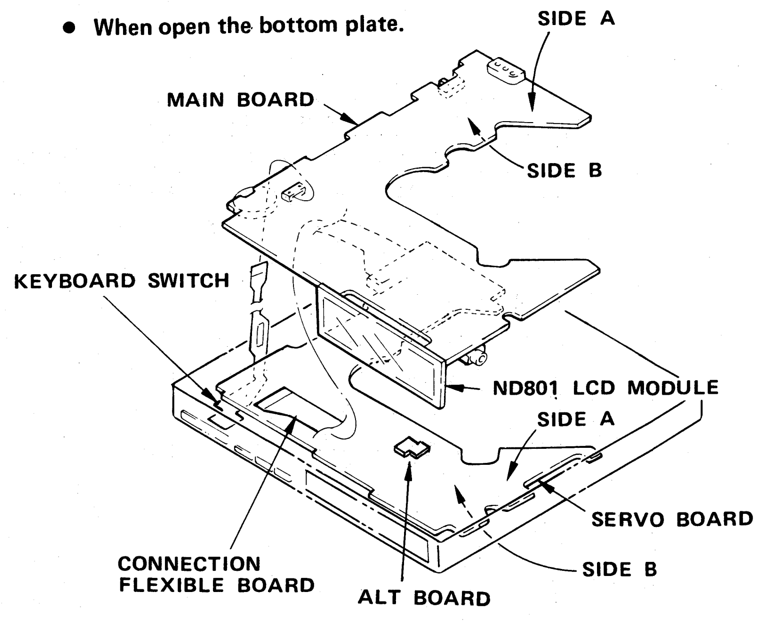
- When open the bot

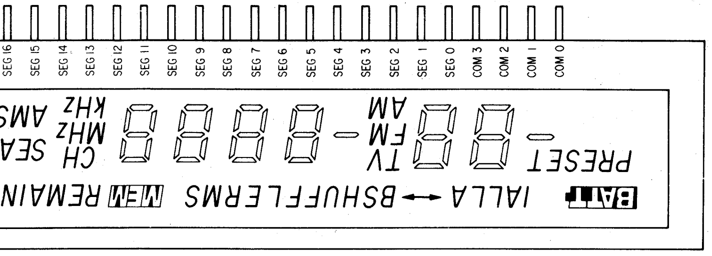

MAIN BOAR
KEYBOARD SWITCH
CONNECTION FLEXIBLE BOAR
D813
D817
Q801

DUCTOR LOCATION

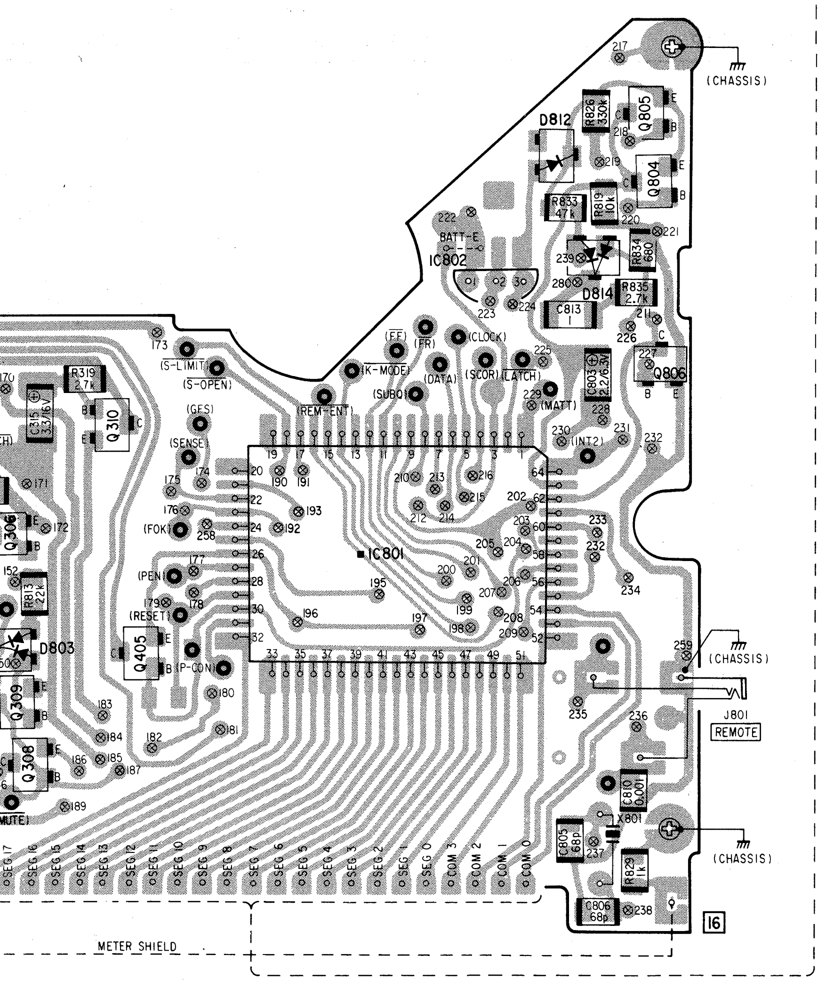
cation	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
G-21	D511	J-33	IC501	H-32	Q205	H-19	Q404	E-4
E-3	D803	I-8	IC502	J-31	Q301	I-5	Q405	I-9
E-3	D811	H-16	IC503	I-24	Q302	I-6	Q406	F-20
C-21	D812	F-11	IC504	E-24	Q305	H-19	Q407	C-20
B-4	D813	G-14	IC505	F-25	Q306	I-8	Q411	A-4
B-21	D814	G-11	IC506	F-28	Q307	H-7	Q412	A-5
B-26	D815	I-16	IC601	I-27	Q308	J-8	Q501	G-32
-24	D817	I-13	IC602	H-26	Q309	J-8	Q502	J-32
E-25			IC801	I-10	Q310	H-8	Q504	D-25
E-26	IC301	I-6	IC802	G-10	Q311	H-17	Q801	H-14
F-25	IC302	I-19	IC803	J-15	Q312	H-17	Q804	G-12
F-25	IC303	I-5			Q313	I-16	Q805	F-11
H-24	IC304	I-20	Q101	I-20	Q314	H-5	Q806	H-2
G-24	IC305	H-4	Q103	H-19	Q315	H-6		
G-24	IC306	J-4	Q105	H-20	Q401	E-3		
G-24	IC401	D-3	Q201	I-20	Q402	F-3		
H-26	IC402	B-3	Q203	I-19	Q403	E-4		

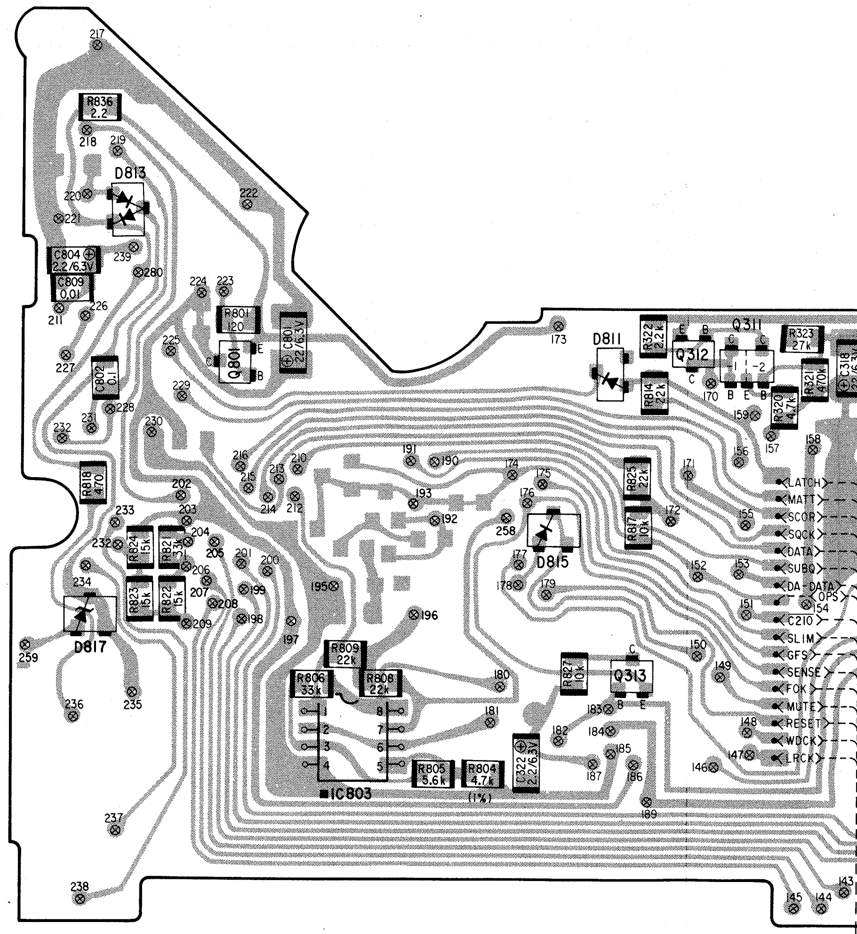
- **When open the bottom plate.**

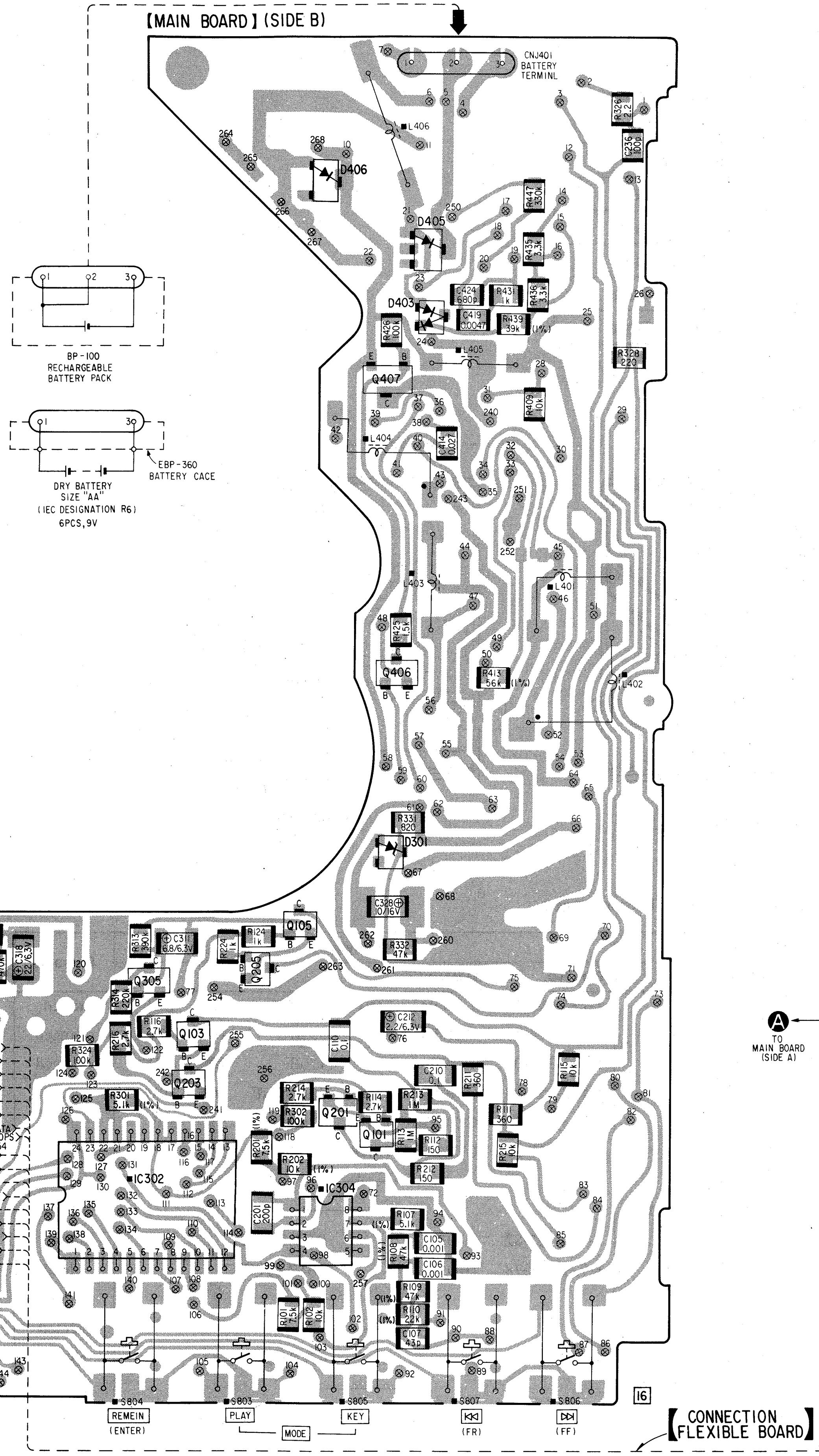

SIDE A
MAIN BOARD
SIDE B
KEYBOARD SWITCH
ND801 LCD MODULE
SIDE A
SERVO BOARD
SIDE B
CONNECTION FLEXIBLE BOARD
ALT BOARD

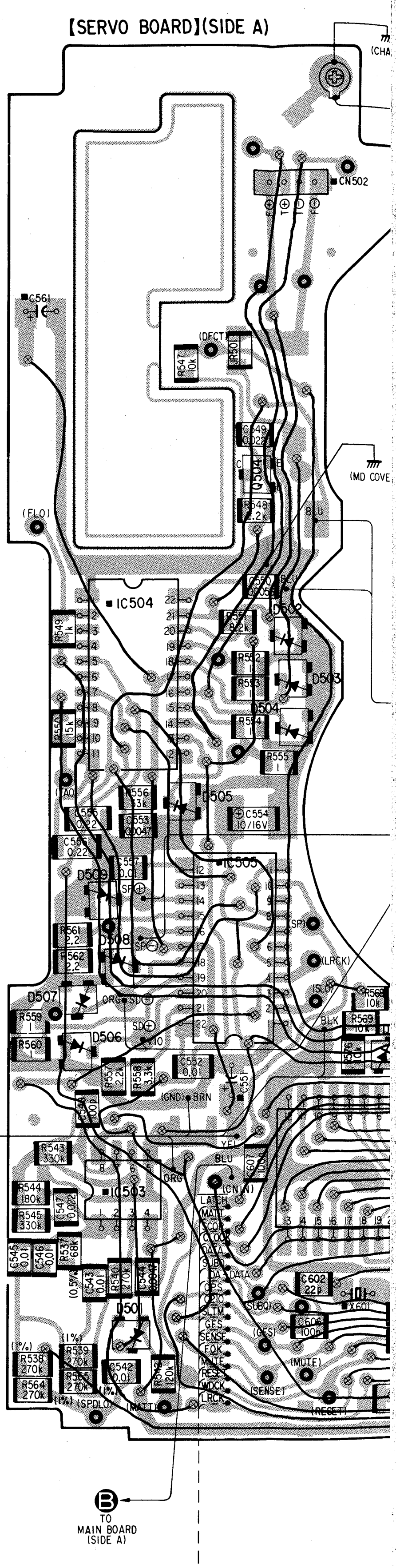

SEG 16 SEG 15 SEG 14 SEG 13 SEG 12 SEG 11 SEG 10 SEG 9 SEG 8 SEG 7 SEG 6 SEG 5 SEG 4 SEG 3 SEG 2 SEG 1 SEG 0 COM 3 COM 2 COM 1 COM 0
PRESET CH SEA MHz kHz FM AM TV
BATT IALLA BSHUFFLERMS MEM REMAIN

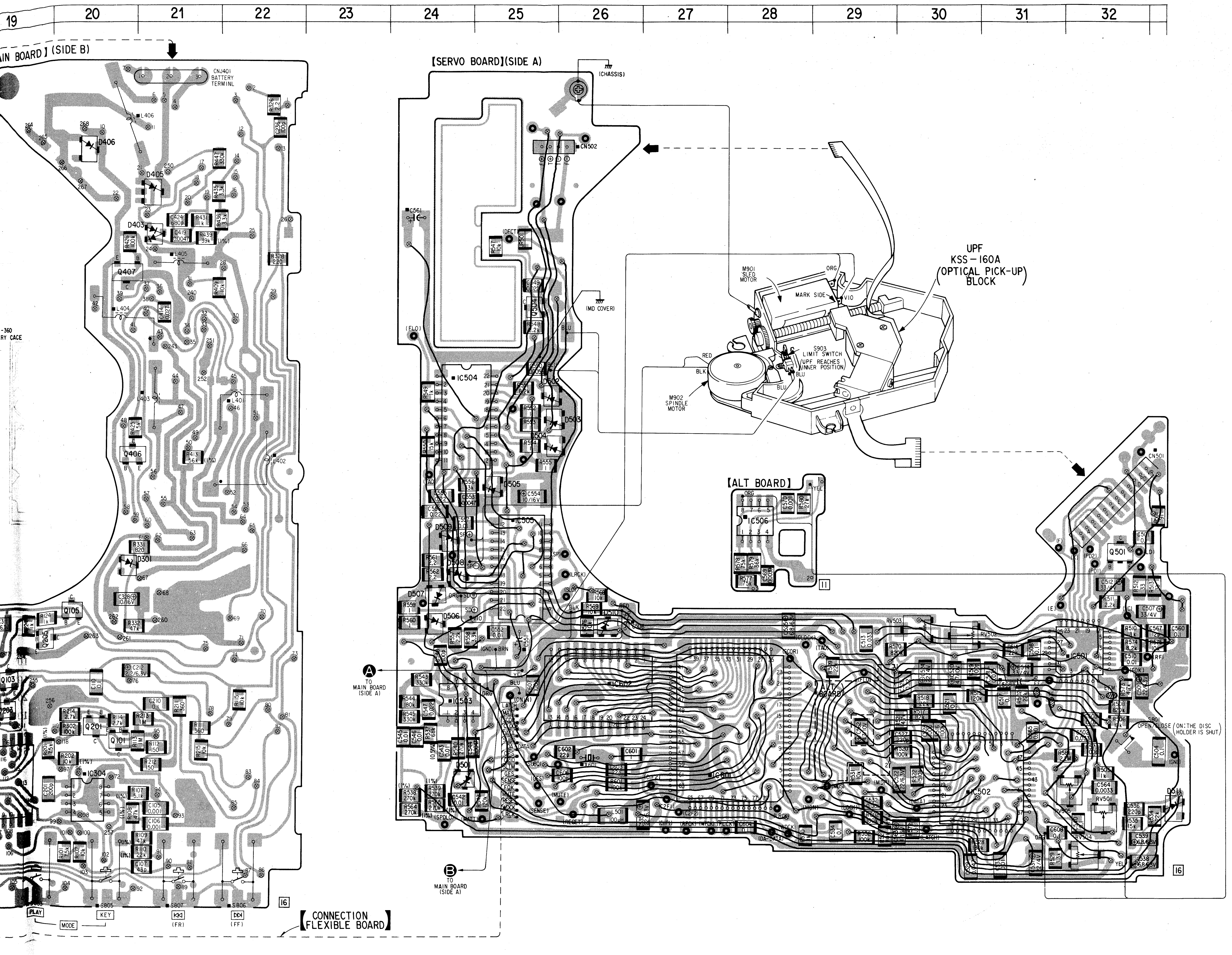
D MODULE


D812
D813
D814
D803
IC801
IC802
BATT-E
Q805
Q804
Q806
Q310
Q405
Q309
Q308
(CHASSIS)
J801
REMOTE
X801
(S-LIMIT)
(S-OPEN)
(GFS)
(SENSE)
(FOK)
(PEN)
(RESET)
(P-CON)
(REM-ENT)
(K-MODE)
(SUBQ)
(DATA)
(SCOR)
(LATCH)
(CLOCK)
(MATT)
(INT2)
METER SHIELD
16


D813
D817
Q801
IC803
R836 2.2
C804 22/6.3V
C809 0.01
R818 470
R823 15k
R822 15k
R809 22k
R806 33k
R808 22k
R805 5.6k
R804 4.7k
C801 22/6.3V


【MAIN BOARD】(SIDE B)
CNJ401 BATTERY TERMINL
BP-100 RECHARGEABLE BATTERY PACK
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
EBP-360 BATTERY CACE
D406
D405
D403
Q407
Q406
L406
L405
L404
L403
L401
L402
D301
D811
D815
Q311
Q312
Q313
Q305
Q205
Q105
Q103
Q203
Q201
Q101
IC302
IC304
(LATCH)
(MATT)
(SCOR)
(SQCK)
(DATA)
(SUBQ)
(DA-DATA)
(C210)
(SENSE)
(SLIM)
(GFS)
(FOK)
(MUTE)
(RESET)
(WOCK)
(LRCK)
S804 REMEIN (ENTER)
S803 PLAY
S805 KEY
MODE
S807 (FR)
S806 (FF)
16
【CONNECTION FLEXIBLE BOARD】
A TO MAIN BOARD (SIDE A)


【SERVO BOARD】(SIDE A)
CN502
(MD COVE
(DFCT)
(FLO)
IC504
IC503
IC505
D502
D503
D504
D505
D506
D507
D508
D509
D501
(SPOLO)
(MATT)
(SENSE)
(MUTE)
(RESET)
(GFS)
(LRCK)
(CN104)
B TO MAIN BOARD (SIDE A)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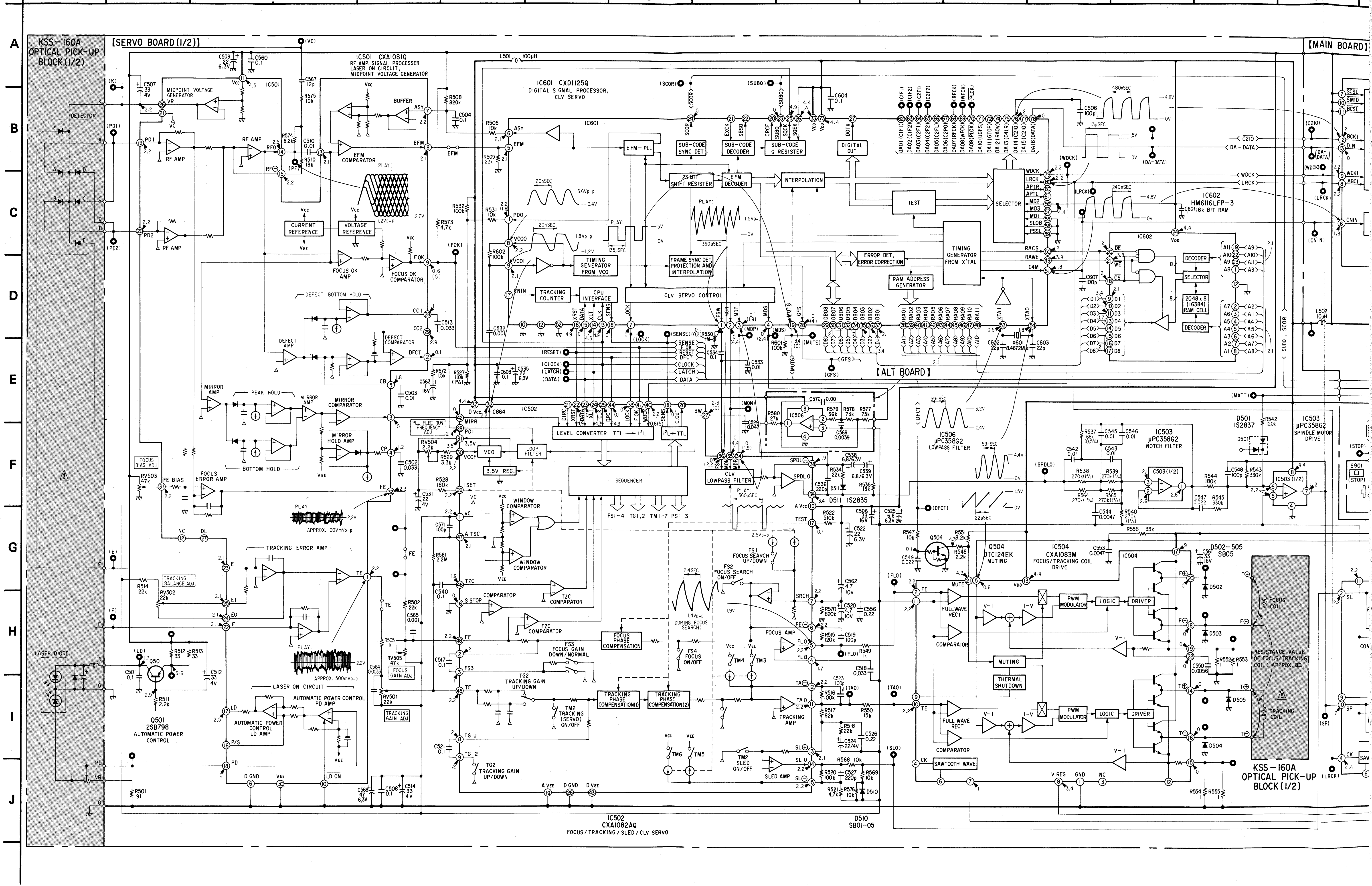
32
AIN BOARD] (SIDE B)
CNJ401 BATTERY TERMINL
D406
D405
D403
Q407
Q406
D301
Q105
Q201
Q101
IC304
S805 KEY
S807 (FR)
S806 (FF)
PLAY
MODE
16
【CONNECTION FLEXIBLE BOARD】
【SERVO BOARD】(SIDE A)
(CHASSIS)
CN502
(MD COVER)
IC504
IC505
IC503
IC601
IC502
IC501
D502
D503
D504
D505
D506
D507
D508
D509
D501
D510
D511
Q501
CN501
TO MAIN BOARD (SIDE A)
TO MAIN BOARD (SIDE A)
UPF KSS-160A (OPTICAL PICK-UP) BLOCK
M901 SLED MOTOR
MARK SIDE
ORG
V10
S903 LIMIT SWITCH (UPF REACHES INNER POSITION)
RED
BLK
BLU
M902 SPINDLE MOTOR
【ALT BOARD】
YEL
IC506
11
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT)
RV501
RV502
RV503
RV504
RV505
16

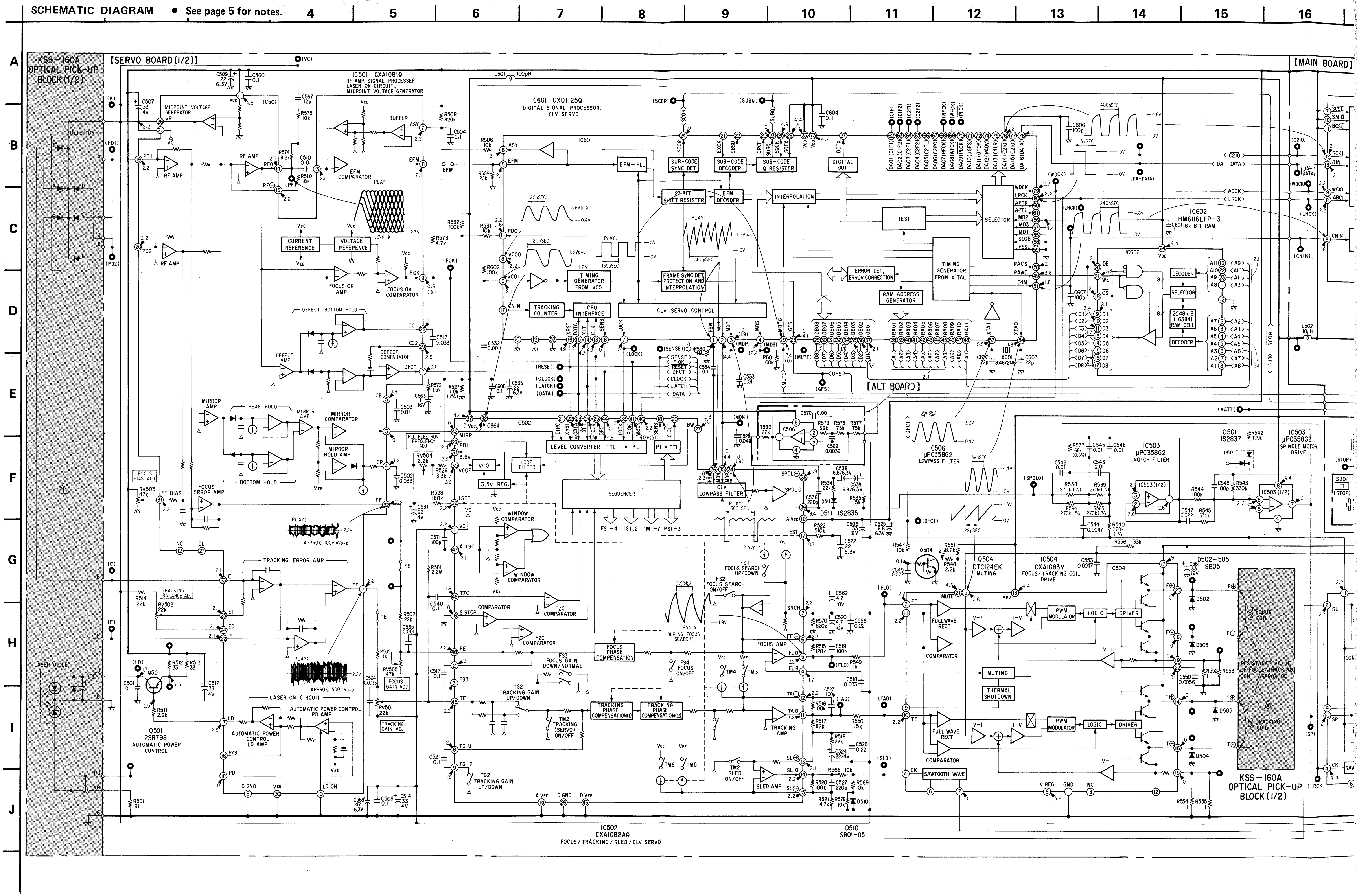
SCHEMATIC DIAGRAM ● See page 5 for notes.



KSS-160A OPTICAL PICK-UP BLOCK (1/2)
[SERVO BOARD (1/2)]
[MAIN BOARD]
[ALT BOARD]
DETECTOR
LASER DIODE
IC501 CXA1081Q
RF AMP, SIGNAL PROCESSER
LASER ON CIRCUIT,
MIDPOINT VOLTAGE GENERATOR
MIDPOINT VOLTAGE GENERATOR
RF AMP
EFM COMPARATOR
BUFFER
CURRENT REFERENCE
VOLTAGE REFERENCE
FOCUS OK AMP
FOCUS OK COMPARATOR
DEFECT BOTTOM HOLD
DEFECT AMP
DEFECT COMPARATOR
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
MIRROR COMPARATOR
MIRROR HOLD AMP
FOCUS BIAS ADJ
FOCUS ERROR AMP
TRACKING ERROR AMP
TRACKING BALANCE ADJ
LASER ON CIRCUIT
AUTOMATIC POWER CONTROL PD AMP
AUTOMATIC POWER CONTROL LD AMP
Q501 2SB798 AUTOMATIC POWER CONTROL
IC601 CXD1125Q
DIGITAL SIGNAL PROCESSOR, CLV SERVO
EFM-PLL
SUB-CODE SYNC DET
SUB-CODE DECODER
SUB-CODE Q RESISTER
DIGITAL OUT
23 BIT SHIFT RESISTER
EFM DECODER
INTERPOLATION
TEST
SELECTOR
TIMING GENERATOR FROM VCO
FRAME SYNC DET. PROTECTION AND INTERPOLATION
ERROR DET. ERROR CORRECTION
RAM ADDRESS GENERATOR
TIMING GENERATOR FROM X'TAL
TRACKING COUNTER
CPU INTERFACE
CLV SERVO CONTROL
X601 8.4672MHz
IC602 HM6116LFP-3 16k BIT RAM
DECODER
2048 x 8 (16384) RAM CELL
IC502
LEVEL CONVERTER TTL → I²L
I²L → TTL
PLL FLEE RUN FREQUENCY ADJ
VCO
LOOP FILTER
3.5V REG.
SEQUENCER
FSI-4 TG1,2 TM1-7 PSI-3
WINDOW COMPARATOR
COMPARATOR
TZC COMPARATOR
FZC COMPARATOR
FOCUS GAIN ADJ
TRACKING GAIN ADJ
FS1 FOCUS SEARCH UP/DOWN
FS2 FOCUS SEARCH ON/OFF
FS3 FOCUS GAIN DOWN/NORMAL
FS4 FOCUS ON/OFF
FOCUS PHASE COMPENSATION
FOCUS AMP
TG2 TRACKING GAIN UP/DOWN
TM2 TRACKING (SERVO) ON/OFF
TRACKING PHASE COMPENSATION(1)
TRACKING PHASE COMPENSATION(2)
TRACKING AMP
TM2 SLED ON/OFF
SLED AMP
CLV LOWPASS FILTER
IC502 CXA1082AQ FOCUS/TRACKING/SLED/CLV SERVO
D510 SB01-05
D511 1S2835
IC506 μPC358G2 LOWPASS FILTER
IC503 μPC358G2 NOTCH FILTER
IC503 μPC358G2 SPINDLE MOTOR DRIVE
D501 1S2837
Q504 DTC124EK MUTING
IC504 CXA1083M FOCUS/TRACKING COIL DRIVE
D502-505 SB05
FULL WAVE RECT
COMPARATOR
PWM MODULATOR
LOGIC
DRIVER
MUTING
THERMAL SHUTDOWN
SAWTOOTH WAVE
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL : APPROX. 8Ω
KSS-160A OPTICAL PICK-UP BLOCK (1/2)
APPROX. 100mVp-p
APPROX. 500mVp-p
DURING FOCUS SEARCH

SCHEMATIC DIAGRAM

• See page 5 for notes.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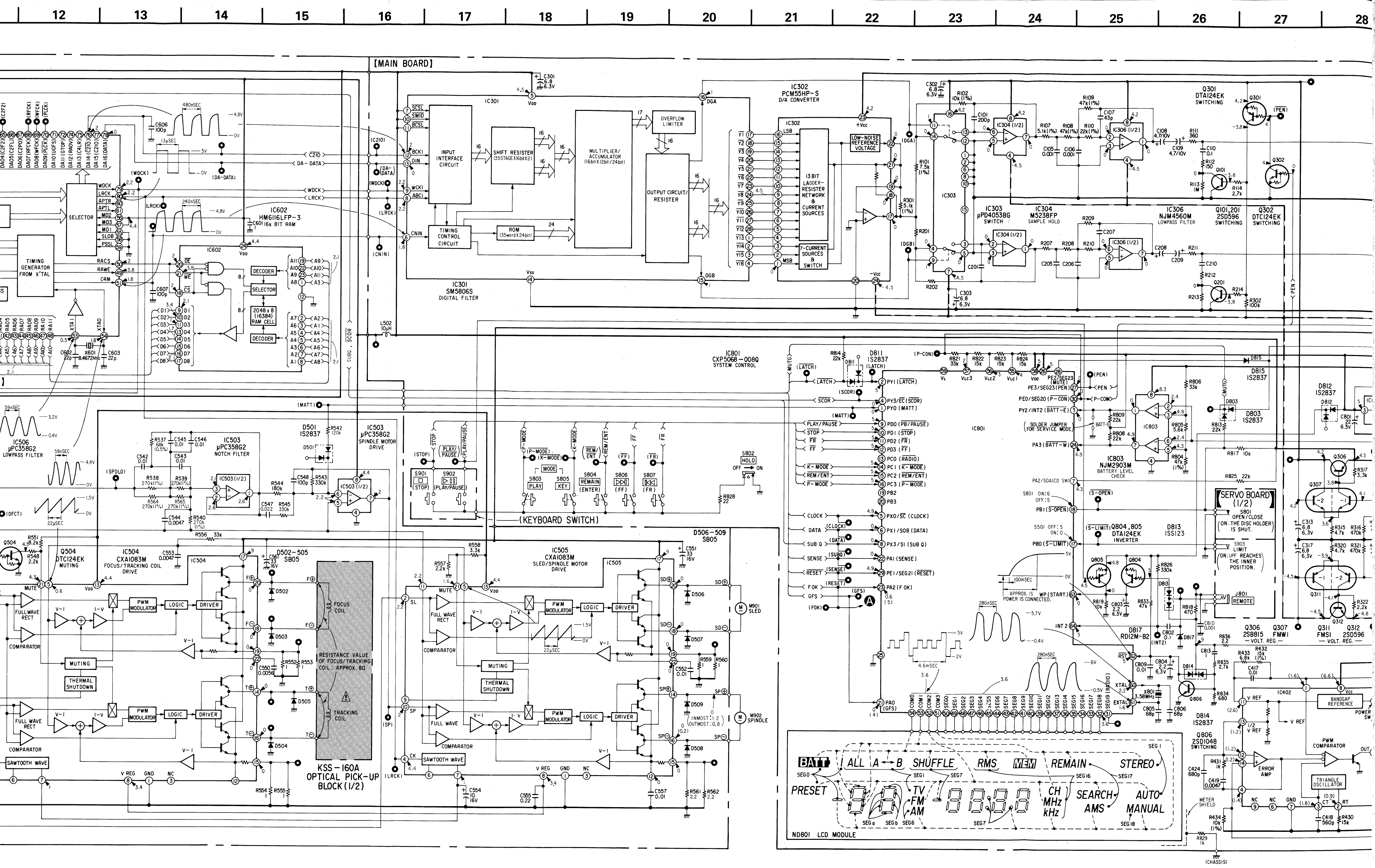
A
B
C
D
E
F
G
H
I
J
KSS-160A OPTICAL PICK-UP BLOCK (1/2)
[SERVO BOARD (1/2)]
[MAIN BOARD]
DETECTOR
LASER DIODE
IC501 CXA1081Q
RF AMP, SIGNAL PROCESSER
LASER ON CIRCUIT,
MIDPOINT VOLTAGE GENERATOR
MIDPOINT VOLTAGE GENERATOR
BUFFER
RF AMP
EFM COMPARATOR
CURRENT REFERENCE
VOLTAGE REFERENCE
FOCUS OK AMP
FOCUS OK COMPARATOR
DEFECT BOTTOM HOLD
DEFECT AMP
DEFECT COMPARATOR
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
MIRROR COMPARATOR
MIRROR HOLD AMP
FOCUS BIAS ADJ
FOCUS ERROR AMP
TRACKING ERROR AMP
TRACKING BALANCE ADJ
LASER ON CIRCUIT
AUTOMATIC POWER CONTROL PD AMP
AUTOMATIC POWER CONTROL LD AMP
Q501 2SB798 AUTOMATIC POWER CONTROL
PLAY:
APPROX. 100mVp-p
APPROX. 500mVp-p
IC601 CXD1125Q
DIGITAL SIGNAL PROCESSOR, CLV SERVO
EFM-PLL
SUB-CODE SYNC DET
SUB-CODE DECODER
SUB-CODE Q RESISTER
DIGITAL OUT
23 BIT SHIFT RESISTER
EFM DECODER
INTERPOLATION
TEST
SELECTOR
TIMING GENERATOR FROM X'TAL
ERROR DET, ERROR CORRECTION
RAM ADDRESS GENERATOR
TIMING GENERATOR FROM VCO
FRAME SYNC DET, PROTECTION AND INTERPOLATION
TRACKING COUNTER
CPU INTERFACE
CLV SERVO CONTROL
X601 8.4672MHz
IC602 HM6116LFP-3
16k BIT RAM
DECODER
2048 x 8 (16384) RAM CELL
IC502
PLL FLEE RUN FREQUENCY ADJ
VCO
LOOP FILTER
3.5V REG.
LEVEL CONVERTER TTL → I²L
I²L → TTL
SEQUENCER
FSI-4 TG1,2 TM1-7 PSI-3
CLV LOWPASS FILTER
[ALT BOARD]
IC506 μPC358G2 LOWPASS FILTER
WINDOW COMPARATOR
TZC COMPARATOR
COMPARATOR
FZC COMPARATOR
FOCUS PHASE COMPENSATION
FS1 FOCUS SEARCH UP/DOWN
FS2 FOCUS SEARCH ON/OFF
DURING FOCUS SEARCH
FS3 FOCUS GAIN DOWN/NORMAL
FS4 FOCUS ON/OFF
FOCUS GAIN ADJ
TG2 TRACKING GAIN UP/DOWN
TM2 TRACKING (SERVO) ON/OFF
TRACKING PHASE COMPENSATION(1)
TRACKING PHASE COMPENSATION(2)
TRACKING GAIN ADJ
FOCUS AMP
TRACKING AMP
TM2 SLED ON/OFF
SLED AMP
IC502 CXA1082AQ
FOCUS/TRACKING/SLED/CLV SERVO
D510 SB01-05
D511 1S2835
IC503 μPC358G2 NOTCH FILTER
IC503 μPC358G2 SPINDLE MOTOR DRIVE
D501 1S2837
Q504 DTC124EK MUTING
IC504 CXA1083M
FOCUS/TRACKING COIL DRIVE
D502-505 SB05
FULL WAVE RECT
COMPARATOR
PWM MODULATOR
LOGIC
DRIVER
MUTING
THERMAL SHUTDOWN
SAWTOOTH WAVE
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL : APPROX. 8Ω
S901 (STOP)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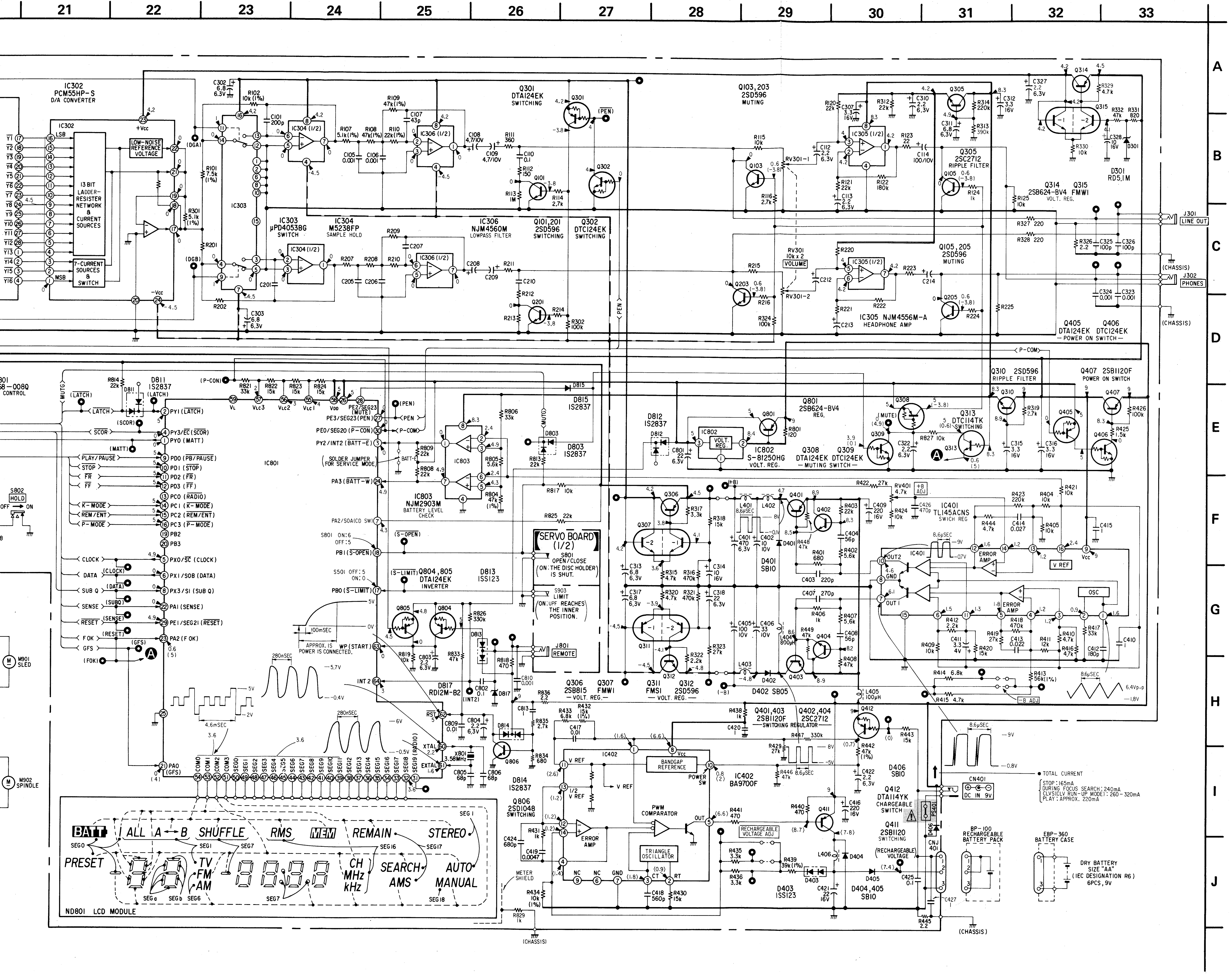
[MAIN BOARD]
IC301
SM5806S
DIGITAL FILTER
INPUT INTERFACE CIRCUIT
SHIFT RESISTER (35STAGE X16bit X2)
MULTIPLIER/ACCUMULATOR (16bit X12bit/24bit)
OVERFLOW LIMITER
OUTPUT CIRCUIT/RESISTER
TIMING CONTROL CIRCUIT
ROM (35word X24bit)
IC302
PCM55HP-S
D/A CONVERTER
13 BIT LADDER-RESISTER NETWORK & CURRENT SOURCES
7-CURRENT SOURCES & SWITCH
LOW-NOISE REFERENCE VOLTAGE
IC303
μPD4053BG
SWITCH
IC304
M5238FP
SAMPLE HOLD
IC306
NJM4560M
LOWPASS FILTER
Q101,201
2SD596
SWITCHING
Q302
DTC124EK
SWITCHING
Q301
DTA124EK
SWITCHING
SELECTOR
TIMING GENERATOR FROM X'TAL
IC602
HM6116LFP-3
16k BIT RAM
DECODER
SELECTOR
2048 x 8 (16384) RAM CELL
X601 8.4672MHz
IC506
μPC358G2
LOWPASS FILTER
IC503
μPC358G2
NOTCH FILTER
IC503
μPC358G2
SPINDLE MOTOR DRIVE
D501
1S2837
IC504
CXA1083M
FOCUS/TRACKING COIL DRIVE
Q504
DTC124EK
MUTING
D502-505
SB05
IC505
CXA1083M
SLED/SPINDLE MOTOR DRIVE
D506-509
SB05
MUTE
FULLWAVE RECT
COMPARATOR
MUTING
THERMAL SHUTDOWN
PWM MODULATOR
LOGIC
DRIVER
SAWTOOTH WAVE
V REG
GND
NC
FOCUS COIL
TRACKING COIL
RESISTANCE VALUE OF FOCUS/TRACKING COIL : APPROX. 8Ω
KSS-160A
OPTICAL PICK-UP BLOCK (1/2)
M901 SLED
M902 SPINDLE
(INNOST:1.2)
(OUTMOST:0.8)
(KEYBOARD SWITCH)
S901 (STOP)
S902 (PLAY/PAUSE)
S803 PLAY
S805 KEY
S804 REMAIN (ENTER)
S806 (FF)
S807 (FR)
S802 HOLD
OFF ON
IC801
CXP5068-008Q
SYSTEM CONTROL
D811
1S2837
IC803
NJM2903M
BATTERY LEVEL CHECK
(SOLDER JUMPER FOR SERVICE MODE)
[SERVO BOARD] (1/2)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.
S903 LIMIT (ON: UPF REACHES THE INNER POSITION.
S501 OFF: 5 ON: 0
S801 ON: 6 OFF: 5
Q804,805
DTA124EK
INVERTER
D813
1SS123
J801
REMOTE
D817
RD12M-B2
X801 3.58MHz
D814
1S2837
Q806
2SD1048
SWITCHING
D815
1S2837
D803
1S2837
D812
1S2837
Q306
2SB815
Q307
FMW1
— VOLT. REG.—
Q311
FMS1
Q312
2SD596
— VOLT. REG.—
IC402
V REF
BANDGAP REFERENCE
ERROR AMP
PWM COMPARATOR
TRIANGLE OSCILLATOR
METER SHIELD
(CHASSIS)
APPROX. 1s WP (START)
POWER IS CONNECTED.
BATT
ALL A↔B SHUFFLE RMS MEM REMAIN STEREO
PRESET
TV FM AM
CH MHz kHz
SEARCH AMS
AUTO MANUAL
ND801 LCD MODULE



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32
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A
B
C
D
E
F
G
H
I
J
IC302 PCM55HP-S D/A CONVERTER
13 BIT LADDER-RESISTER NETWORK & CURRENT SOURCES
7-CURRENT SOURCES & SWITCH
LOW-NOISE REFERENCE VOLTAGE
LSB
MSB
IC303 μPD4053BG SWITCH
IC304 M5238FP SAMPLE HOLD
IC306 NJM4560M LOWPASS FILTER
Q101,201 2SD596 SWITCHING
Q301 DTA124EK SWITCHING
Q302 DTC124EK SWITCHING
Q103,203 2SD596 MUTING
Q105,205 2SD596 MUTING
Q305 2SC2712 RIPPLE FILTER
Q314 Q315 2SB624-BV4 FMW1 VOLT. REG.
D301 RD5.1M
RV301 10k x 2 VOLUME
IC305 NJM4556M-A HEADPHONE AMP
J301 LINE OUT
J302 PHONES
(CHASSIS)
Q405 DTA124EK Q406 DTC124EK — POWER ON SWITCH —
Q310 2SD596 RIPPLE FILTER
Q407 2SB1120F POWER ON SWITCH
Q801 2SB624-BV4 REG.
IC802 S-81250HG VOLT. REG.
Q308 DTA124EK Q309 DTC124EK — MUTING SWITCH —
Q313 DTC114TK SWITCHING
D811 1S2837
D812 1S2837
D815 1S2837
D803 1S2837
IC801
IC803 NJM2903M BATTERY LEVEL CHECK
SOLDER JUMPER FOR SERVICE MODE
SERVO BOARD (1/2)
S801 OPEN/CLOSE (ON: THE DISC HOLDER IS SHUT.)
S903 LIMIT (ON: UPF REACHES THE INNER POSITION.)
Q804,805 DTA124EK INVERTER
D813 1SS123
J801 REMOTE
D817 RD12M-B2
X801 3.58MHz
Q806 2SD1048 SWITCHING
D814 1S2837
APPROX. 1S POWER IS CONNECTED.
100mSEC
280nSEC
4.6mSEC
S802 HOLD
M901 SLED
M902 SPINDLE
ND801 LCD MODULE
BATT ALL A↔B SHUFFLE RMS MEM REMAIN STEREO
PRESET TV FM AM CH MHz kHz SEARCH AMS AUTO MANUAL
SEG0 SEG1 SEG7 SEG16 SEG17 SEGa SEGb SEG6 SEG18
Q306 2SB815 Q307 FMW1 — VOLT. REG. —
Q311 FMS1 Q312 2SD596 — VOLT. REG. —
D401 SB10
D402 SB05
IC401 TL1451ACNS SWICH REG
ERROR AMP
V REF
OSC
+B ADJ
–B ADJ
8.6μSEC
6.4Vp-p
Q401,403 2SB1120F Q402,404 2SC2712 —SWITCHING REGULATOR—
IC402 BA9700F
BANDGAP REFERENCE
POWER SW
PWM COMPARATOR
TRIANGLE OSCILLATOR
RECHARGEABLE VOLTAGE ADJ
METER SHIELD
Q412 DTA114YK CHARGEABLE SWITCH
Q411 2SB1120 SWITCHING
D406 SB10
D403 1SS123
D404,405 SB10
PS401
CN401 DC IN 9V
BP-100 RECHARGEABLE BATTERY PACK
EBP-360 BATTERY CASE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
● TOTAL CURRENT
STOP: 165mA
DURING FOCUS SEARCH: 240mA
CLVS (CLV RUN-UP MODE): 260~320mA
PLAY: APPROX. 220mA